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PROFESSIONAL ADVERTISING.

THE question of advertising always promotes controversy, and opinions on its morality and efficacy vary between the view of the typical commercial traveller, who regards it as a chief necessity of commercial life, and that of the altruist and artist, to whom the very expression is anathema. We shall endeavour to show, firstly, that it is almost impossible for the professional man to make a career for himself without that which, strictly defined, must be classed as advertising; and, secondly, that the abuses of the practice are mainly better dealt with by that most potent of all deterrents, ridicule, than by attempts to draw up codes of ethics and rules.

Advertising may be described as a definite effort to draw attention to the merits of any article with a view to its sale, or to attract notice to the capabilities of a man in order to secure his employment in the present or future.

We will assume the case of an architect who wants to obtain work, but who has neither a private income nor influential friends. If he shuts himself up in his office and waits until clients come he will probably wait during his whole lifetime, for his skill, being unknown, is almost useless as an asset to him. He may, it will be said, take part in public competitions, and so secure work; but, in the first place, though "many are called, few are chosen"; and, secondly, only a certain type of man is fitted for the competition struggle; and there are many good architects who are quite unable to qualify even after long practice for competition winning. Again, our architect may secure an official position, but to do so he usually needs friends and introductions he does not possess. Under such circumstances he will probably join clubs or societies composed of men working together for some object of interest or pleasure, and he will assuredly not hide the fact that he is an architect from those with whom he comes into contact. And if he does so he is advertising himself equally with those who put their names on the hoarding of a building under erection. There may be an objection to the one practice and none to the other, but both alike are inspired with the same object.

There are, too, among practising architects those who, in convenient season, will let individual members of the public know directly or indirectly that they have special knowledge of a certain class of building; that they have made a special study of Italian architecture; that, in their experience, the only way to secure good building is to adopt special methods to eliminate the possibilities of scamped work, or they will tell a friend some interesting detail of the evidence given in a legal case in which they were witnesses. All these things are to be regarded as advertising, and criticism is usually absent if the process has been sufficiently subtle and is not painfully apparent. We have heard of men who are far too busy to be seen except by special appointment, but who have been known to be somewhat less busy than appearances seem to indicate; and should a client offer the busiest of architects a fresh commission he will in not a few cases be found quite willing to accept it.

Apart from the advertising involved in suggesting openly or covertly that one possesses professional qualifications, there is the no less subtle process of "making friends" by being a pleasant companion, or by proving one's use in some outside capacity or other, and our contention is that all these methods are employed in varying degree not by quacks and charlatans, but by everyone who has tact, ambition, and understanding, and that they are natural impulses springing out of the necessities of our existence, and yet that, if analysed, they are but so many forms of advertising. The English Bar may be quoted, for its etiquette as far as advertising is concerned is unusually strict, but the same general conditions apply. Though a barrister may not approach a solicitor and ask for work, he can indicate in many side channels such as politics, journalism, and public life, his fitness and ability; and the etiquette of the medical profession does not entirely prevent the ambitious younger men from demonstrating their ability in their professional calling.

The broad line beyond which such practices are to be condemned seems to us to be where they injure someone else in the same calling who may be said to be "in possession," and where they contribute to bring the exponents of a calling in low esteem.

An architect we once heard of would call on a friend who had employed someone else, and, the subject being referred to incidentally, would say, "If I had known before! But I must say nothing," and, on being pressed for his meaning, he would, with apparent reluctance, give reasons why his friend would have been better advised to come to him. Sometimes the suggestion worked, and in other cases it did not, but such methods are not calculated to raise individuals, or the callings they are members of, in the public esteem. Nor can anything but utter condemnation be meted out to the man who undermines a rival by offering to do the work in question for smaller fees, for this is a pure and obvious malpractice which should be put down with the utmost rigour.

But we are always amused at the dictum that it is legitimate and proper to inscribe the architect's name on his work in small and almost illegible lettering, while it is unprofessional that the architect who is erecting a building should have his name placed on a hoarding. "By thy works shall ye be judged," and should the public, whose attention is usually attracted to a building in course of erection, wish to know the name of its architect it seems to us entirely to the advantage of architecture that it should be able to do so, to praise and remember, or condemn and remember, as the case may be.

In most of these matters common sense and decency will prevent that which is objectionable from being efficacious. The architect who obviously pushes for work and presses his claims unduly will fail in his endeavours. It is useless and ridiculous for an architect to advertise his qualifications in a large heading on his notepaper; most people have sufficient sense to recognise that the man who emphasises his own merits is more in want of work than the man who does not adopt extraordinary means to force himself on the attention of the public, and they will be critical as to his qualifications. Professional men will find that they cannot impose on the credulity of the public by emulating the methods of a vendor of patent medicines; ridicule will kill almost all such attempts more surely than intricate codes of regulations, which give opportunities for much useless debate. If the professional man becomes a bore and a tout he will suffer in pocket as well as reputation by doing so, but the total elimination of such characters—if possible, which we doubt—would deprive fiction of much of its material! The reputation of architects as a whole will not suffer because of the eccentricity or vulgarity of a few individuals the difficulty of controlling whom is hardly worth the labour involved in doing it.

We should not be inclined to go so far as to say that an architect should not in any case ask a friend to employ him; in some cases it can be done without loss of dignity or sacrifice of professional reputation. "Manners makyth man," and the conditions which determine what is good or bad taste in a certain instance are too delicate and complicated to form a basis for rules and regulations. We have heard the statement made that a man can ask for almost anything if he asks for it in the right way, and we think this is very nearly true in life. He who understands men will come to the conclusion that they are moved in different degrees by the same impulses, and that there are few of our natural and normal impulses which cannot be gratified without disadvantage to the community if our methods are well chosen. The need for advertising arises out of civilisation, and it is only condemned when it is badly done!

NOTES.

The R.I.B.A. Meeting: King's College Hospital.

MR. W. A. PITE gave a most interesting account of the great hospital which he has carried out so admirably. A large attendance of members showed great appreciation of the manner in which Mr. Pite, while never sacrificing practical requirements, had succeeded in giving architectural character and dignity to a modern hospital, and architects were delighted to hear from several members of the staff, who proposed, seconded, and supported the vote of thanks to Mr. Pite, how thoroughly they appreciated and recognised the manner in which the architect had succeeded in meeting the wants and requirements of the varied and complicated needs of the medical and administrative staffs. A result of this kind is of great value to the whole profession, who stand better with the outside profession because of the skill of one of their members and the selection of the subject at the present time, when practical considerations are more than usually occupying most people's minds, is most opportune. We agree with several of the speakers in thinking that this hospital will long be regarded as a model to be carefully considered when the construction of other institutions of a like nature is under contemplation.

Testimonies of Study.

IT seems a pity that these exhibitions of Testimonies of Study are not made more interesting and instructive to both members and students of the Institute. As at present arranged, the most that can be gathered is a somewhat vague impression of the general average standard of work done by those studying for the R.I.B.A. examination. But as there is nothing to indicate the designs that have been approved or rejected, it is impossible to form any idea of the standard of design set up by the Institute, or whether there is any definite standard at all. This is a matter of considerable importance, and of some interest to those who are anxious for the future of architecture. The last exhibition of designs for a monument to Lord Roberts contained much work that was entirely lacking in character, and, if we remember rightly, the previous exhibition contained some examples of antique monuments, such as that of Lysicrates, adapted to the purpose of a modern organ-case in a concert hall. It would be interesting to know how many of these were approved. If the names were always published in the *Journal* before the exhibition closes it might be possible to discover this by a comparison of the names with the drawings, but it would be much more convenient if the pass drawings were clearly marked. It would also be most instructive if some member of the Board of Architectural Education would always meet the students after every adjudication and give a general criticism of the designs with the reasons which led to their approval or rejection.

The A.A. Schools and the War.

EVERYONE who realises the great importance of architectural education will have heard with much regret that the war has had a most serious effect upon the financial position of the Architectural Association. As the schools of the A.A. depend on the subscriptions of its members and the fees of its students, and lack the State support given to the Royal College of Art, or the University funds, which maintain such schools as those of the London and Liverpool Universities, it is obvious that the loss of the fees of some fifty students and of the subscriptions of some 350 members must cause considerable financial embarrassment. Fortunately, the Institute has been able to come to its assistance with a sum which should enable it to overcome the difficulties of the present session; but the future has still to be provided for. All those who appreciate the value of the work the schools are doing have now an opportunity of rallying to their support and of keeping them going during the present crisis. This opportunity will, presumably, be taken advantage of by the Advisory Committee, with whose approval and encouragement the schools were kept open. It might perhaps be thought somewhat extravagant to keep so much machinery in motion for the sake of twenty students. But all possible economies have, we understand, been effected. In any event, we are glad that the schools are not to close, as the progress they have recently made in the teaching of design has been most marked. This was particularly noticeable in the last exhibition of Testimonies of Study at the Institute, where the Association work compared most favourably with that of the other schools.

Manchester and Official Architecture.

WE welcome the statement that the Manchester City Council has appointed a committee to inquire into its present method of carrying out architectural work, and to advise as to the advantages or disadvantages of employing independent practising architects. Judging from the speeches made in the Council when the committee was proposed, we have every confidence that the question will be fully and fairly dealt with. Architects usually prefer independent positions because they are persuaded that their absolute independence is best for the public and best for themselves, and they are inclined to think that the present tendency to employ officials on creative work is the result of a fundamental misconception of the nature and functions of an architect. But they are open to conviction. If it can be conclusively proved that the public interest can be best served by their employment in an official capacity rather than as independent practitioners, no doubt they will be willing to accept the situation. It is conceivable that the gradual evolution of our social structure may give rise to conditions under which the most gifted men could do their best work in an official capacity, but it can hardly be said that such conditions have yet arisen.

Carpenters' Hall Lectures.

PROFESSOR SELWYN IMAGE, M.A., gave the last of this year's series of popular lectures, arranged by the Carpenters' Company on the Arts connected with Building, on the works of William Blake, whose pictures and writings have lately attracted much attention and aroused great admiration among many critics. Professor Image interested his audience if he did not entirely convince them that Blake was worthy of a place among the world's greatest artists. Whether it is an advantage to believe, as Blake did, that he was a divine instrument for the instruction of a waiting world from the standpoint of art, or whether it is, on the other hand, a false inducement to tread in the paths of æsthetic eccentricity, we should not like to say; but it is clear to us that Blake must, like Mohammed, have had absolute faith and belief in his mission. His work seems to be divided into two categories—of designs which are fine and unusual in their conception, and others which appear to be almost childish and immature. If Professor Image is interested in a theme he certainly has the rare power of swaying those who are inclined to disagree with him, but we are not inclined to subscribe to the view that a new master has been found, though we admit the unusual interest of much of Blake's work.

Exhibition of German and Austrian Art Products.

THE Exhibition of German and Austrian Art Products at the Goldsmiths' Hall should form a useful reminder to British manufacturers and designers that we have allowed our markets to be exploited by foreigners, who have learnt the wants of the people better than we have ourselves. The work of our best designers has in many cases been used by German enterprise, and the results sold to us by German manufacturers, an example of which is the German typefounding industry, for which the work of Wm. Morris, T. J. Cobden Sanderson, and others has been made use of in Germany, who have imported tons of type into this country. The pictures which cover the walls of the London Board Schools are chiefly made in Germany, and when it is considered that there are 1,725 primary schools in London, each using thirty to forty of these pictures, the manner in which German enterprise succeeds may be realised. We were chiefly struck with the excellence of the German posters, which are better designed for spectacular effect than the majority of English work of a similar character, and very much more artistically lettered. The exhibit of textile fabrics was a remarkably good one, and many of the lesser articles showed powers of appropriate design. The general note of design was throughout a strong one, though there was little of superlative excellence. We hope that our manufacturers will acquire and hold the markets which have hitherto been monopolised by our commercial rivals, and the exhibition instituted by the Board of Trade should serve a useful purpose.

Reclaimed Land for Embankment Gardens.

SOME thirty years ago, when the sulphurous condition of the Metropolitan Railway demanded ventilation, powers were obtained for the formation of several ventilation shafts along the Embankment. These still rear their heads above the surrounding shrubberies, although the necessity for them has disappeared. Mr. H. M. Paull has very properly suggested their removal and the rededication of the land to the Gardens. They certainly mar the beauty of the Gardens, and we commend the suggestion to the London Society or the Metropolitan Public Gardens Association. The railway company has since become merged in the Underground Electric combination, and is not likely to voluntarily surrender these spaces, although if proper representations be made they would hardly play the part of dog-in-manger. The removal of the walls and the covering of the spaces will involve expense, but if the Open Spaces Committee of the London County Council can be brought to undertake this there should be no difficulty. The question recalls another feature of this section of the line, which is a menace to the Embankment and might possibly be adjusted once for all at the same time. The stations at Temple and Charing Cross both offer sites for the erection of high buildings, and a little time ago schemes were prepared for both sites, but were abandoned. The rights of the company do not appear to be restricted by the public rights over the adjoining gardens, and those of adjoining owners, such as the Duke of Norfolk and the freeholders of the Villiers-street property, do not seem to be sufficient to restrain the company, should it ever contemplate such schemes afresh. There is no doubt such buildings competing with those behind would gravely interfere with the line of the Embankment, and they should never be permitted; the existing buildings are already in front of the present building line, and, that being so, the heights could scarcely be controlled. An undertaking not to build higher than 30 ft. would probably be easily secured now, whereas at some later time it might be impossible to do so. There can be no danger in asking for such an undertaking, as already the company is aware of its position.

TIJOU AND OTHER METAL-WORKERS AT ST. PAUL'S.

By J. M. W. Halley.

St. Paul's, in common with any mediæval cathedral, is an epitome of the arts and crafts of the time in which it was built, but whereas the latter represents a period of centuries, the former sums up a brief thirty-five years.

The mediæval building usually displays a high level of traditional excellence in all the arts, St. Paul's individual genius of many artists. This distinction, in no way invidious, shows the essential difference between mediæval methods and those that have obtained since the end of the seventeenth century. For better or worse, modern architecture must be personal, in a way that no work of the Gothic period was for all its romantic beauty. To-day we think of Wren as working with a tradition, but in reality the force he was directing was not old enough to have acquired the strength of tradition. He was indeed a pioneer, and, like a wise captain, chose his subordinates with care. The artists who helped him were in the same way of adventure, and they with their great chief opened up a vista, down which succeeding generations have been content to go.

Wren consulted the most eminent masons about the best stone to be used in the rebuilding; he also employed them. The best carvers of his time worked for him, and his smiths were headed by Jean Tijou, who, after Grinling Gibbons, was the most individual of the craftsmen of the late seventeenth century.

Very little is known of the life of Tijou beyond the fact of his French nationality. He may have come to England with the Prince and Princess of Orange in 1689. If he did he must have been given employment at once, for in the following year he had already executed at Hampton Court six iron vanes, "finely wrought in Leaves and Scroll worke," for which he received £80.* Some of Tijou's most original work is to be found there, but for sheer beauty of design he never worked to better purpose than at St. Paul's. Although he was neither the first nor the last smith to be employed at the latter place, it is best to give precedence to one who was the most consummate artist of them all. The first notice of Tijou in the "Accounts" of the rebuilding of St. Paul's occurs in November, 1691, some years earlier than the date given by Mr. Starkie Gardner, when he charged "ffor the Iron Work of two Windows for ye Choire, vizt.—

ffor 31^{c} 1^{q} 20^{lb} at 6^{l} p ^{lb}	93£	08^{s}	00^{d}
ffor 45 foot runing of the Grotesk barrs at 6^{s} p foot	13	10	00
ffor 45 foot runing of Grotesk barrs being different from ye rest at 4^{s} p foot runing	09	00	00
ffor Workmanship of ye two Scrowles in ye Keys	06	00	00

Between January and April, 1692, he charged for twelve more windows, his bills being set out in the same manner as that already quoted—the plain work at so much a pound and the ornamental (Grotesk) by the foot.

For several years Tijou was executing for St. Paul's nothing more elaborate than this—mere journey-work it might be called—while he was beating out his fanciful and splendid grilles at Hampton Court. Mr. Starkie Gardner, in his fine book, from which I have already quoted, suggests that Wren and Tijou were not on intimate terms, and that the work of the smith was beyond the control of the architect, both at Hampton Court and St. Paul's. He writes that "the estimates and bills were presented direct to the Crown or the Cathedral authorities without the usual vouchers or certificates from Wren." I cannot speak with any authority of the procedure at Hampton Court, but in the case of St. Paul's Tijou's bills were entered in the "Accounts" in the same way as those of the other workmen, and collectively signed month by month by Wren and his assistant. Wren, too, was under no compulsion to employ Tijou at all to make these windows, for he had other smiths working for him capable of executing this kind of work. And he did sometimes place the work in other quarters, for in October, 1702, Thomas Coalburne and Thomas Robinson rendered their two several accounts "For 396 foot of Ornament, Balls, Screws and pinns in the 12 Windows in the Dome at 12^{s} per foot running, 19$^{£}$ 16^{s} 00^{d}."

It is an interesting subject of inquiry how much Tijou was ruled by Wren. The design of the ironwork of these windows must be assigned to Wren; more particularly when it is remembered that the prime necessity was a structural one—to resist wind pressure and carry a considerable weight of glass.

From what is known of the infinite pains taken by Wren in designing the minutest part of his work it is not too much to assume that he exercised some authority over Tijou. There are a few drawings preserved at St. Paul's, presumably from the hand of the architect, which suggest that he did think about the ironwork. One is a design for the great altar rail (*Summum Altare Paulinense*), and the other is a drawing showing the backs of the choir stalls, in which some iron panels are sketched. The former was never executed, but the grilles in the back of the stalls were, and Tijou's bill for them can easily be identified among his other work and is quoted below.

These grilles were more suited to Tijou's genius than the great windows, giving him an opportunity to display the repoussé work that is so characteristic of his style. In October, 1694, Tijou charged £20 "ffor two little Windows" in the small staircases on each side of the great west door, which show excellent design and workmanship, but as yet contain no trace of beaten work. By March, 1696, Tijou had finished considerable works in the choir, the account of which runs:—"To John Tijoue [his name is spelt in various ways], Smith, ffor Iron work done in the side ffronts of the Joyners Work in ye Choire (Grotesk work) vizt., ffor 10 Pannills each 3 foot by 2 foot 11 inches containing in all 58 foot 3 inches superficial at 40^{s} p. foot, 116$^{£}$ 10^{s} 00^{d}."

There are four several items in all, including that quoted above, for ten, six, four, and sixteen panels, which amount to £354 3s. 4d.

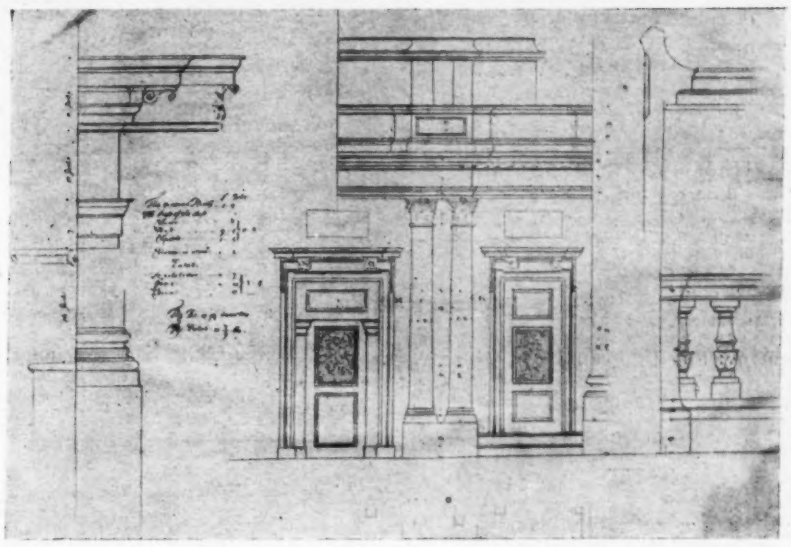
Later in the same year Tijou completed a still more important work, which is described in the "Accounts" as "ye Iron Screen under ye Organ-case in ye Choire containing 221 foot superficiall at 40^{sh} p. foot."

This screen was taken down when the organ was moved in 1860 from its original position, and after lying in the crypt for some years was incorporated in 1890 in the sanctuary screen.

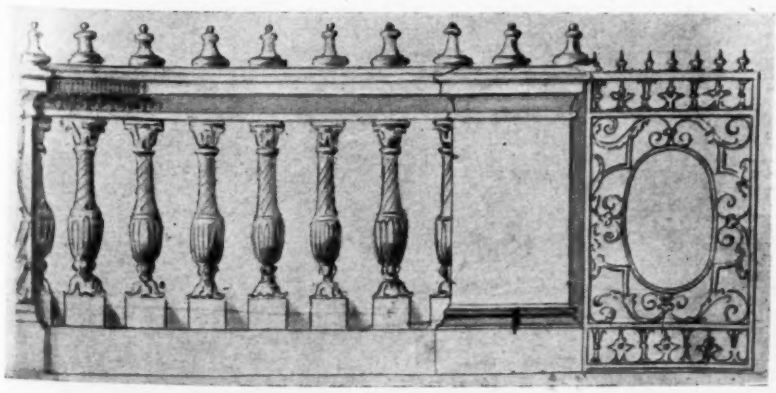
Tijou's next job (included in the "Accounts" for April–June, 1699) was "a paire of great Gates at ye west side of the South Portico with a Wicket, framed of Strong Iron, with ornaments and points on ye top," for which he was paid £160. At the same time he was paid £265 for other work, more delicate and characteristic, which was "ffor two Desks for ye Choristers, 9 foot long each, containing 26 pannills 16 inches square, ^{wt} in both 6^{Cwt} 00^{qr} 6$^{£}$ and for 4 Brackets for ye same containing about 24 foot supf^{ll} w^{t} 2^{Cwt} 2^{qr} 13$^{£}$."

The desks for choristers have been destroyed, with the exception of these repoussé panels, which fortunately have been reused in the panelling in the Chapel SS. Michael and George; the "Gates . . . with a Wicket" can still be seen where they were originally built. These examples may explain the relative parts played by Wren and Tijou, for whereas the fantastical panels, beaten cold out of thin sheets of iron into the most grotesque and fanciful things—masques, figures, and flowers (they are not structural, but rather added graceful ornaments) owe nothing to anyone but Tijou, the gates (which, in a way, are essential parts of the building) suggest the architect as much as the smith. Again, the balcony railing of the "Whispering Gallery" is obviously designed by Wren, and the splendid ironwork at the foot of the "geometrical stair" and of the balusters which join on to the stonework so well, are so much part of a single conception that it is difficult to believe that Wren allowed the design to slip out of his own hands. The account, dated March, 1704, for the first of these items, shows that there is "286 foot running of Pannelling," "26 foot running in 8 Pillasters," and that it cost £823; the second account is dated June, 1706, and reads:—"To John Tijoue Smith for the Iron Work of the round staircase in the South West Tower (vizt.). For 139½ of Rail and panelling to ye Stair Case and Windows at 22^{s} 6^{d} per foot, 156$^{£}$ 18^{s} 9^{d}. For 81½ foot of Iron Work in the Hatch door and other ornam^{ts} at the bottom of ye Stairs at 36^{s} p. foot, 146$^{£}$ 00^{s} 00^{d}.

There is another work executed by Tijou which we know definitely was not designed by him. In a previous article I quoted from



Elevation and Details of Woodwork at the back of the Choir Stalls; indications of the Iron Grilles are shown in the Door Panels.



Summum Altare Paulinē.

The inscription is written in a fair Italian hand, presumably that of Wren.

* "English Ironwork of the XVIIth and XVIIIth Centuries." By A. Starkie Gardner.

the "Accounts" that Francis Bird modelled "a pine apple for ye South West Tower." This pine apple was executed in copper by Jane Brewen, but the corresponding one on the north-west tower was made by Tijou, whose account was settled in June, 1708, and reads :—

To John Tijoue for the Copper Work for the North West Tower vizt. :—

	℔	Q	£					
4 Scrolls gt. in gross	10	3	27					
Ded. for Iron Work in Do.	2	3	20					
Rem^{r} ...	8	0	7	at 3^{s}	per £	135£	9^{s}	0^{d}
Mold plinth & neck to the Pine. Great plinth to the Scrolls & the pine gt. in gross ...	6	3	0					
Ded. for Ironwork in the Body of ye Scrolls	1	1	4					
Rem^{r} ...	5	1	24	at 4^{s}	per £	122£	8^{s}	0^{d}
Ironwork including screws	4	0	24	at 9^{d}	per £	17£	14^{s}	0^{d}
						275£	11^{s}	0^{d}

It is curious that, although Jane Brewen's account is considerably less than Tijou's, her workmanship is much better.

There are a few important works by Tijou which must be mentioned before passing to a brief consideration of other smiths.

There is no more beautiful ironwork in England than the gates at the ends of the choir aisles and the altar-rail; nowhere else has the ductile metal been beaten into fairer or more graceful shapes or been treated with more innate artistry. The account for the gates, dated June, 1705, is as follows :—"To John Tijoue Smith for ye fine Iron work of the Gates of ye two side Isles of ye Choire, by Agreement for Iron, Workmanship, and putting up, 540£ 00^{s} 00^{d}."

Two years later the bill for "Ye Altar Raile" was paid (£260).

According to Mr. Starkie Gardner, Tijou worked at Hampton Court till the end of the seventeenth century, so that some of the iron-work for St. Paul's was forged there. An item occurs several times in the accounts of Lawrence Spencer, the clerk of the works, which reads :—"ffor bringing (by water) ye Iron Work of . . . Windows from Hampton Court to ye Church."

All the materials that came by water were landed at Paul's Wharf, as the windows were, whence they were brought by John Slyford to the church.

By June, 1699, Tijou had apparently moved his forge to London, as the "Accounts" of that date record an item "ffor carriage of 2 iron Gates from Piccadilly to ye Church, 00£ 10^{s} 00^{d}."

Tijou must always have been treated like the great artist he was, and if he had to subordinate his wishes sometimes, at others he may have been perfectly free. The sketch from his hand for a hanging-lamp shows great facility with pen and ink; but may it not also show that Wren did not disdain advice, and in this case was claiming it? Being somewhat apart (although some of the work allotted to him could have been done by other men) he was never asked to supply any of the more common ironwork, such as cramps, chains, etc., for strengthening the masonry.

Wren used an inordinate amount of iron in the construction, which was all supplied by the smiths. One of the first to appear in the "Accounts," September, 1681, is Stephen Leaver, smith, who supplied :—

	℔	Q
16 great Cramps for the Tribune Windows. W^{rt} at 3¾^{d} p £ ... 06£ 02^{s} 06^{d}	3	2

2 Irons for ye Laborers to scrape ye dust off ye Work, 00£ 11^{s} 00^{d}

For many years, in fact until the building was finished, cramps are supplied and entered in this manner. They are made by several different smiths, and the price varies from 3¼d. to 4d. a pound. In October, 1682, Thomas Hodkins charged 3¼d. a pound "ffor 6 large Iron Cramps to reach over the 19 foot Arches." In the following year Hodkins also supplied "10 pair of bright hinges and bright Rivitts for the North West Vestry at 9^{s} p. pr." Another smith named Samuel Coleburne, in March, 1687,

Chandelier pour la Église de St. Paul, London. October 21, 1697.

The inscription is beautifully written in the Italian hand and appears to be Tijou's.

charged 4d. a pound for ironwork, chains, etc., for the south portico, and in the same year he was paid 12s. "ffor taking downe and mending a Sign Iron in ye Street at ye North West Corner, w^{ch} was broken by ye fall of a great Stone." They were a versatile race, the smiths, and were able to fashion iron to any purpose. Coalburn (the same smith as the other) in 1687 made the ironwork for an engine "to draw up rubble and mortar to the top of the work," and when the bell called "Edward of Westminster" was brought to St. Paul's in 1699 "Thomas Robinson, Smith," charged "ffor Straps and Bolts and fferrills for a great Gin to weigh ye great Bell, 03£ 08^{s} 09^{d}," and "ffor ironwork for ye great Bell and for iron-work about ye Clapper, 06£ 08^{s} 06^{d}."

Another man, William Clemens, anchor smith, charged £6 for a clapper for the bell. The most curious example of the versatility of this craft is the following entry, which deserves to be written at length :—

To Thomas Coalburne Smith :— ffor an iron pott and a Bale for ye same	02£	08^{s}	0^{d}
ffor an iron with a Hook and fastenings to hand the said pott to boyl the dogs meat in w^{t} 15£	00	06	03

Thomas Coalburne and Thomas Robinson, as I have said above, also made many of the great windows. The former in October, 1704, charged "for a Balcony for one of the Diagonall Arches under the Dome, 96£ 04^{s} 02^{d}," and in May, 1706, the latter received £100 "for an Iron rail to stand before the Consistory," and "For Locks, Bolts and Treble joynted Hinges for the doores of ye said Rail" a further "05£ 00^{s} 00^{d}." It was Robinson again who made "a Round Balcony for the great cap inside the Dome," charging for it 4d. a pound, the same price that he charged "For a Chain for ye Dome." Iron-cramps in the same bill are 3¾d. a pound. For his railing to the "Golden gallery" he got 7d. a pound, the railing weighed 85℔ 0Q 12£, and cost 278£ 00^{s} 04^{d}. In addition to this there are charges :—

For Cast balls for ye same	4£	18^{s}	00^{d}
For Cramps...	9	02	06

The framework for the Ball and Cross was erected by Robinson, but the actual copper-work was done by Andrew Niblett, copper-smith, the same who made the "planished and polished brass plates" for the floor of the dome.

Thomas Robinson continued to work for some years longer. An entry of the last half of 1714 shows that he supplied "2 Large Brass Knockers to ye out doors" (of the Chapter House) for £1 7s. 6d.

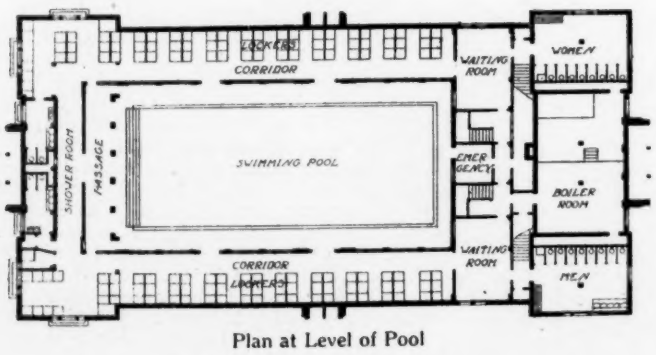
Much against the wish of Wren, the Commissioners decided to erect a cast-iron fence round the Cathedral. This work was given to Richard Jones, who in the "Accounts" is called "Smith," but who was a founder of Ordnance. The weight of this railing was 200 tons and cost £11,202.

"For framing ffive Pair of the Gates in Brass with Skren, Brass Locks, Escutchins, Bosses and Wrenches, etc.," he charged another £80. The total for the whole of this work was £11,500, including carriage to the church and fixing, and took about four years to perform, namely, 1710–14.

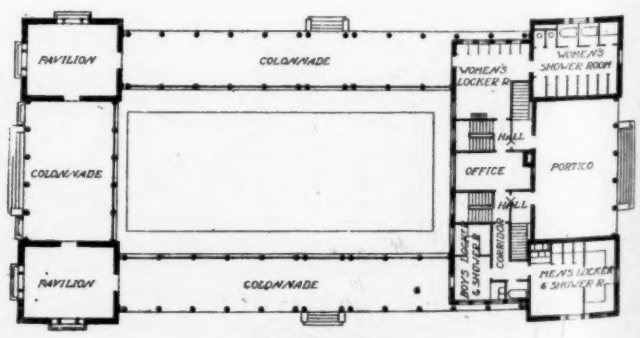
AN AMERICAN SWIMMING BATH.

WE are permitted, though the courtesy of the *Brickbuilder*, to illustrate a typical example of the architectural treatment of a theme which distinguishes the best American architecture.

Whether we put down the difference that exists between the manner in which such subjects are dealt with here and in America to the better education of the architect in America, or whether it is due in greater measure to the more ample scope to be obtained in the New World, or as is more likely to a combination of both causes, the difference is one which in the interests of English architecture is to be regretted. Valuable as our old buildings are, and greatly as we all must value their presence, we sometimes feel that they may exercise a cramping effect on modern design. The



Plan at Level of Pool



First Floor Plan

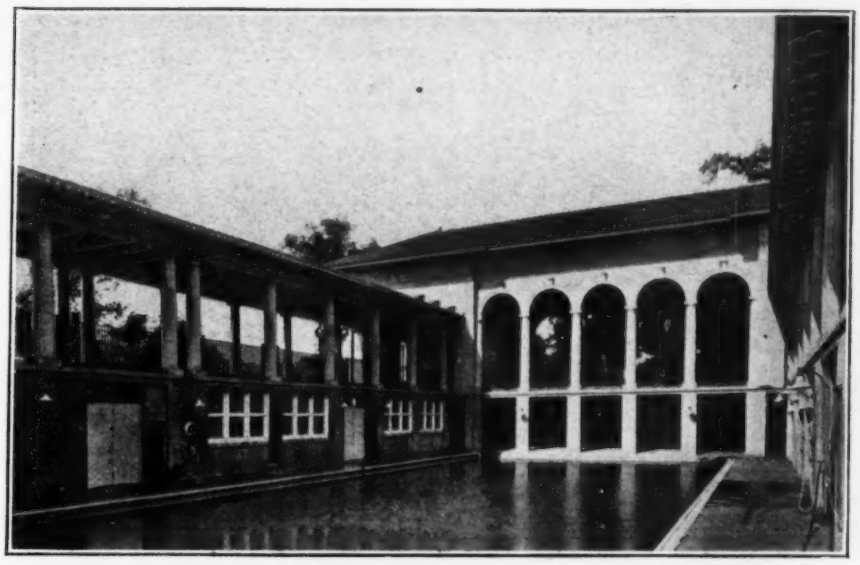
Public Bath in the Grove, Kansas City, Mo.

Messrs. Wilder & Wight, Architects.

(From the *Brickbuilder*.)

buildings of our mediæval forefathers were for the most part small and cramped, the influence of the Renaissance has never been so overpoweringly asserted here as in southern Europe, and modern English architecture, whether for this cause or the two previous factors we have mentioned seldom escapes a suggestion of cramped and hesitating effort.

Were America blotted out as a living nation, enough has been done in the direction of the creation of great architectural monuments to provoke wonder and admiration in the future; and even in a comparatively small scheme like that which we now illustrate the note of size and nobility of design finds expression.



Public Bath in the Grove, Kansas City, Mo.

Messrs. Wilder & Wight, Architects.

(From the *Brickbuilder*.)

THE CHARM OF LINCOLNSHIRE.*

It was Henry VIII. who described Lincolnshire as "one of the most brute and beastly shires of the whole realm," as we learn on p. 240, when 20,000 men of Lincolnshire rose in defence of the pillaged monasteries; and page after page of this charming book bears witness to the persistence of the older traditions, as well as to the power of the monastic churches of the county. The churchwardens' accounts at Addlethorpe, for instance, for the years 1540-80, contain entries of expenses incurred for such Popish ceremonies as "for dressynge the crosse," "for ye sepuller [sepulchre] lyghte," "for certeffyenge of ye Rodloffe." And over and over again comes the entry:—"Reed for ye sowll of" so-and-so, which can only refer to prayers for the dead (pp. 309-10); just the same entries occur in the books at Thorpe for the years 1545-6 (pp. 325-6). It is not surprising, therefore, that Lincolnshire should be rich in much that is of surpassing interest to the architect and the archæologist, and that we should read of such relics as the actual hook and staple of the Lenten veil, or curtain, used in the office of the Easter sepulchre (p. 75); of finely-preserved Easter sepulchres and "idolatroyes" roodlofts and font covers; of bells, with their dedicatory legends to saints unaltered; of wonderful carved woodwork in churches without number; of a library of seventy-four chained books at Grantham; things that have survived the storm and stress of Puritanism in few other counties.

Lincolnshire, as Canon Rawnsley points out, is no county for a pedestrian. Distances are too great, roads—in the Fen and the Marsh, at least—too monotonous. But as a county to live in, the reader feels that it has few rivals in its power of compelling love for its great distances, its strange skies and clouds, its views over great distances. We hear of the spire of Boston being visible for 18 miles across the flats, of the magical effect of Lincoln on its far-seen hill, of the love of the Lincolnshire man for his own county, which has taken imperishable form in the words of Tennyson. Above all, we have the churches; and here Lincolnshire stands alone. Few other counties know so fully the glory of the spire, whether that of Louth, whose vicar was hanged at Tyburn by Henry VIII. for taking part in the rising already mentioned; or that of Boston, the "Stump," with its incomparable lantern; or that of Grantham, which Sir Gilbert Scott put second only to Salisbury, which holds the first rank. Lincolnshire indeed is singularly rich in parish churches, and to mention here Long Sutton and Gedney, Ayscough and Spalding, Fleet and Stamford is to omit a dozen others of equal charm and interest. The Saxon remains are of singular interest, and Sompting itself does not surpass Barton-on-Humber, or St. Michael's, Oxford, St. Bennet's at Lincoln, while the tower of St. Peter's-at-Gowts (= sluices), also at Lincoln, has a grace and beauty unparalleled in its own style except in Italy. The glories of Lincoln, Roman and mediæval, have been often told; the fame of Tattershall Castle, that perfect specimen of mediæval brickwork, has gone far and wide, thanks to the removal and recovery of the famous fireplaces which will be an eternal monument to the generosity of Lord Curzon; it is the smaller churches, the outlying villages, the great monastic foundations that this book will reveal to many readers for the first time. It may be doubted whether in all England there is a more exquisite bit of Norman work than St. Leonard's Priory, Stamford, with its unique oval window, which reappears a century later in Kirkstead Chapel (p. 398) and nowhere else, so far as the present writer is aware; and few houses surpass in interest the Old Hall at Gainsborough, of which Mr. Griggs gives us two enchanting pictures, or the old houses in St. Paul's-street, Stamford, or those in the back streets of Boston, with their strong suggestion of Dutch or Flemish work.

There is a certain pleasant egotism about Mr. Rawnsley's book, due chiefly to his personal connection with the county and with Tennyson, partly to his many-sided interests, which lead to the insertion of matter not very germane. Often we may be grateful for this, as in the case of the exquisitely absurd epitaphs from all parts of England, quoted on pp. 42, 87, 414, and elsewhere, while the personal details or family traditions are often of great interest. The author's prejudices are nevertheless conspicuous; he has never a good word for the great eighteenth-century monuments which, after a century of Gothic exclusiveness, we are again beginning to appreciate. The great group of the first Duke of Ancaster and his family at Edenham, which was recognised by his contemporaries as one of Scheemakers' most important works, is not a thing "to turn away from with relief," as the author would have us believe. Nor is a word of praise given to the exquisite nave of Gainsborough, with its suggestion of a glorified Trinity Chapel, Oxford, though it would be hard to find a better example of its period. Wren's work in the cloisters of Lincoln is ruthlessly condemned (p. 102), while to extol Thornycroft's (here misprinted Thornicroft's) recent statue of Tennyson in the ante-chapel of Trinity College, Cambridge, at the expense of the Newton of Roubiliac, probably the greatest statue ever produced in England, is simply incomprehensible. Certain errors of fact should be corrected in a second edition. On p. 19, 1643 was not "the last year of Charles I." (or is 1643 a misprint for 1648?); the Roman pavements found at Winterton in 1699, 1748, and 1797

* "Highways and Byways of Lincolnshire." By W. F. Rawnsley; with illustrations by Frederick L. Griggs. (Macmillan & Co. 1914.)

Public Bath in the Grove, Kansas City, Mo.

Messrs. Wilder & Wight, Architects.

(From the *Brickbuilder*.)

No. 40, Threadneedle-Street, E.C.

should be grouped together instead of being separately mentioned on pp. 184 and 196; and a note on the history of the Holy Family, by Raphael Mengs, which forms the unexpected altar-piece at the latter place, would be very acceptable. The statement on p. 199, that Wycliffe was Chaucer's model for the character of the Good Parson, is on a parallel with Sir John Hawkins' equally baseless remark that the original of Dryden's Good Parson—a mere modernising of Chaucer's original—was Bishop Ken. The tradition early originated from the attribution of certain anti-ecclesiastical tracts to the poet, who was, on the strength of them, supposed to hold Wycliffite opinions; the inference as to the Good Parson naturally followed, but the belief has been abandoned since the days of Tyrwhitt.

The brass of Sir Thomas Barnardiston described on p. 225, with its inscription :—

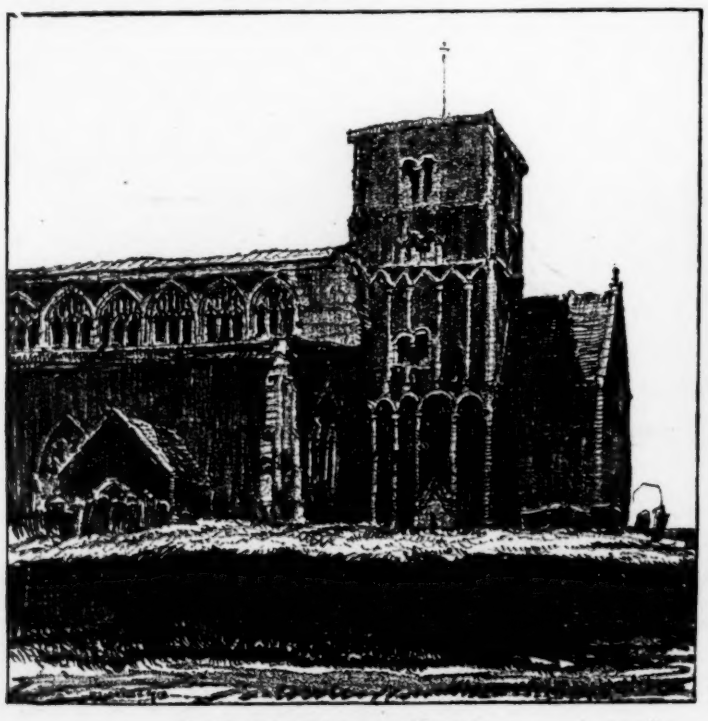
> Of yr charite say a p'noster ave and cred
> And ye shall have a C days of prdon to yor med,

is ascribed to the seventeenth century, whereas it cannot be later than 1530. Two dates are mentioned upon p. 365, 1230 and 1868, and we are left to discover which is the less appropriate to the paragraph beginning "at that time," which describes the astonishing fact that the front row of pews in the lofts were (*sic*) sold to different families by auction, and would fetch as much as £80, the second row reaching £40." On p. 251 the author justly says that "When the Romans left us, all the arts at once declined in our island, and notably the art of building"; whereas, two pages later we read that "When Augustine landed in 597 it was not to a nation of barbarous savages, but to people quite equal in many ways to those he had lived among in Italy . . . that he had to preach"; and Mr. Rawnsley goes on "to show the Saxon art" by quoting various examples of it, the earliest belonging to the seventh century. The statement on p. 258, that "King Ethelbert was baptised by St. Augustine in the ninth century," must be a mere slip of the pen. The index, too, leaves much to be desired in the way of fullness. There is no reference to St. Augustine, for instance; none to Roubiliac; none to Mikkylcotes (p. 225); none to the family of Ancaster (p. 30); none to the question of rating in the Fen districts, as to which very interesting figures are given. Slight blemishes such as these, however, do not affect the serious value of a book written in 1914 by a writer who as a boy was well acquainted with Dr. Keate, the awful headmaster to whom Wellington after Waterloo did not dare to confess his boyish misdeeds at Eton; who, as a schoolboy, went with a friend to an inn at Stamford at which Daniel Lambert's clothes were exhibited, when "the two stood back to back the armhole of his spacious waistcoat was slipped over their heads and fell loosely round them to the ground" (p. 16); who knew a local poet forty years ago, and records his ballads of the shooting of seal and swan; whose uncle remembers passing a skeleton hanging in chains on the road from Bourne to Wisbech; who delivered the centenary address at the Tennyson celebrations at Lincoln, and knew as a boy the house at Skegness "one room thick," the views from which inspired Tennyson's lines in *The Last Tournament* on "the wide winged sunsets of the misty marsh" in the days when Skegness was unprofaned. No less perfectly has Mr. Griggs's pencil caught the character of the Lincolnshire country and the Lincolnshire churches, which will reveal to many for the first time the glories of the poet's land of "crowded farms and lessening towers."

No. 40, THREADNEEDLE-STREET, E.C.

ONE is apt to look askance at all the late classic of the 'seventies and early 'eighties, such as one encounters in the byways of the City; yet much of it is good, and a great deal is excellent. Perhaps it is that the work classed in the categories both good and excellent is generally overshadowed by adjacent work of mediocrity.

No. 40, Threadneedle-street makes a pleasant incident in the journey eastwards from the Bank. The main entrance to the building forms a rich focal frontispiece at the end of an alleyway, with an open arch below offering a way of escape through. The theme is of that rich Italian mode which John Gibson made his particular study, but the design does not wantonly favour the Baroque. In this front the interest centres in the simplicity and good taste of the general composition. The coupled columns carry a simple entablature forming a frame to the Palladian three-light window; but the greatest achievement inheres in the masterly treatment of the spandril. To treat a spandril successfully is one of the most difficult of problems.



St. Peter's, Barton-on-Humber.

Lincoln from the Witham.

From "Highways and Byways of Lincolnshire."

ARCHITECTURAL SOCIETIES.

Devon and Exeter Architectural Society.

Devon and Exeter Architectural Society's annual meeting at Plymouth recently was attended by Messrs. J. A. Lucas (Exeter), President; C. Cheverton (Devonport), Vice-President; L. F. Tonar, J. Jerman, and T. A. Andrews, Exeter; E. Coath Adams, A. S. Parker, B. Priestley Shires, A. C. H. Norman, J. S. Davis, H. Watts, R. H. Mill, and C. H. L. Varcoe (Plymouth); and A. J. Pinn (Hon. Secretary).

The Hon. Secretary reported that the membership had been well maintained, there being seventy-eight members. The Council again had to regret that there had been no response from the younger members in connection with the London Architectural Association, whereby students of this society could join the School of Design; therefore the guinea book prize offered by the Society had not been awarded. No drawings were submitted for the measured drawings prize for 1914, therefore the prize of two guineas in books offered by the Society had not been awarded. The usual exhibition of drawings, submitted for the R.I.B.A. prizes and studentships, was held at the Royal Albert Memorial University College at Exeter in August last, attracting a large number of visitors. The war prevented the annual excursion, and the following members were reported on active service:—Captains W. J. T. Carder, 5th Devons (Territorial); F. Earle, Royal Engineers; J. C. Southcombe, 6th Devons (Territorial); Lieutenant W. H. May, National Reserve; Lieutenant B. W. S. S. Baily, Wiltshire Regiment; Lieutenant C. R. Rickeard, Garrison Artillery; Privates A. R. Muddell and E. E. J. Henderson, 2nd P.S. Battalion Royal Fusiliers; C. A. Jeffery, 4th Devon General Service Battalion; J. S. B. Ward, 4th Battalion Gordon Highlanders (Territorial); H. Thorne, 6th Devons (Territorial); E. H. Palmer; J. D. Coleridge, Royal Naval Volunteer Reserve; P. H. Coleridge, Inns of Court O.T.C.; Sergeant C. H. Phillips, 105th Saskastoon Fusiliers, Canadian Expeditionary Force; Sappers W. W. Hitchins and F. M. Pidsley, Royal Engineers.

There is a Three Towns branch of the Society which presented a separate report, referring, among other things, to a letter the Committee sent to the Mayor of Plymouth suggesting the possibility of distributing municipal work of an architectural character amongst the several architects practising within the borough.

President's Address.

The President, in his address, said the subject of registration appeared to be a dead letter for the time being, but he sincerely hoped that the Royal Institute would take some firm stand on the matter. He had been in practice over twenty years, and during the whole of that time this question had been in the air without any definite result. The one great thing in the minds of them all was the war and its effect upon the well-being of their profession. They thought of Belgium and the North of France—Louvain, Malines, Tirlemont, Ypres, and Reims—the splendid monuments of past ages ruthlessly destroyed. The effect of the war upon their profession locally had been the partial stoppage of land development and building operations. The whole energies of the Empire were directed towards the attainment of one object, and until the end was in sight there could be no great activity in either of the departments named. Architects and architecture were luxuries, and people were partly giving up luxuries temporarily. Land developments had been much checked whilst building was being hampered by the high price of materials and the shortage of labour. In this time of leisure let them put their house in order. Let them press forward registration. Every profession seemed protected except theirs. Let them impress upon all public bodies the advantage of engaging skilled architects for purely architectural works. Architects as individuals were too retiring. In his opinion they should endeavour to get on every local public body and make themselves heard. Take town planning and housing. Who had a better right to be consulted on them than practising architects? The Corporation of Exeter called in an expert to advise them as to the development of Exeter on town-planning lines. To his mind, all that was ancient and associated with the history of an old city like Exeter should be preserved. But this expert proposed a grand square opposite the Museum in Queen-street, with a Carnegie library, a town hall where the Higher Market stands, an art gallery at the corner of Queen-street and High-street, the detachment of the Guildhall, a garden, and, naturally a playground for children adjoining the Guildhall, the demolition of St. Pancras Church, probably the oldest church in the city, a production something like Old Temple Bar at the High-street end of Martin's-lane, and last, but not least, a new street from the front of the Guildhall to the Cathedral Yard. The scheme was dormant now, but got a short awakening at times. Apart from its cost, to embark upon such an idea would detract from all the beauty of the present High-street, and, whilst it might be fit for a modern town, was out of all question for the historical city of Exeter. Their Council had appointed a Committee to watch this scheme. He felt convinced that when peace came there was going to be a great trade boom, in which they would get their share. After a few words as to the training of pupils, Mr. Lucas said he would like to see some of their best county architects exhibitors at the Royal Academy. Some had been lucky enough to get their architectural drawings hung there, but very few sent up for the exhibition. They were having an art exhibition at the Royal Albert Memorial towards the end of the year, and he had succeeded in getting the Committee to add an architectural section. Having gone so far, he relied on the support of all the members of their Society.

Mr. B. P. Shires proposed, and Mr. Cheverton seconded, a vote of thanks to the President for his address.

Election of Officers.

The following officers and Council were elected:—Mr. Charles Cheverton, M.S.A. (Devonport), President; Mr. L. F. Tonar, Licentiate R.I.B.A. (Exeter), Vice-President; Mr. S. Dobell (Exeter), Hon. Treasurer; Mr. Allan J. Pinn, A.R.I.B.A. (Exeter), Hon. Secretary; and Messrs. J. Crocker, F.R.I.B.A., C. Cole, M.S.A., and J. Jerman, F.R.I.B.A. (Exeter), to fill the vacancies on the Council of those retiring, as well as those remaining in office, viz., Messrs. A. S. Parker, F.R.I.B.A., H. Watts, A.R.I.B.A. (Plymouth), A. J. Cornelius, M.S.A. (Truro), and the two past-Presidents, Messrs. E. Coath Adams, M.S.A. (Plymouth), and J. G. Lucas, F.R.I.B.A. (Exeter).

Subsequently the members lunched together and afterwards proceeded to inspect some of the old houses and buildings in Plymouth.

Glasgow Technical College Architectural Craftsmen's Society.

The annual business meeting of the Glasgow Royal Technical College Architectural Craftsmen's Society was held on Friday, 26th ult., when the following gentlemen were elected office bearers of 1915–16:—Honorary Presidents, Mr. T. L. Watson, I.A., architect; Mr. James M. Monro, F.R.I.B.A., I.A., architect; Mr. Charles Gourley, B.Sc., A.R.I.B.A., F.S.A., Scot Professor of Architecture; Mr. Alex. Davidson, Licentiate R.I.B.A., architect. President, Mr. Robert Moon, wright. Vice-Presidents, Mr. Thomas Whyte, F.F.S., P.A.S.I., surveyor; Mr. Peter Lyall, builder. Joint Secretaries, Mr. Donald Dewar, Assoc.F.S., surveyor; Mr. Malcolm D. McPhail, surveyor. Treasurer, Mr. Thomas Davis. Representative to College Committee on Architecture, Mr. W. H. Baxter, wright.

GENERAL NEWS.

Professional Announcements.

Messrs. Daniel Watney & Sons, auctioneers and surveyors, have transferred their offices to No. 4A, Fredericks-place, Old Jewry, E.C., as from the 25th ult., the lease of their premises at 33, Poultry having expired.

Mr. Harry E. Pollard, quantity surveyor, of 5, Lower James-street, Golden-square, has removed to 40, Brewer-street, Golden-square, W.

Putney School of Art.

The annual exhibition of the work of students attending the London County Council Putney School of Art was held on the 27th ult., when the awards gained during the year were presented by the Mayor of Wandsworth (Alderman A. D. Dawnay). Mr. J. Bowyer (the Principal) reported that the school could claim a very creditable share of the prizes and other distinctions. Four art scholarships had been gained, two valued £25 each by Messrs. Edward J. Ashenden and Albert V. Merritt; a £20 scholarship by Miss Beatrice M. Goldsmith; and one of £12 by Miss Nita Cuddeford. A £3 evening art exhibition had been won by Mr. Bernard J. Leech, and other prizes included seventeen national awards, among which were a silver and three bronze medals.

The R.I.B.A. Examinations: The Final: Approved Designs.

The Board of Architectural Education announce that the designs submitted by the following students have been approved:—

SUBJECT XIX.

(*a*) A Memorial to Lord Roberts.

R. C. Arnold	A. B. B. Jopling
C. J. Brandon	W. J. Knight
J. C. C. Bruce	J. Scott Lawson
R. W. Carey	D. R. Lyne
G. R. Cottingham	C. H. Mitchell
N. F. C. Day	G. Munguia
R. A. Duncan	F. Riexa
T. C. Evans	T. A. Sanders
S. C. Foulkes	W. N. Spence
R. D. Graham	F. J. Stevens
H. St. J. Harrison	G. P. Tubbs
M. Hendry	W. C. Vonberg
V. Hull	A. G. Wood
L. D. H. Hutton	F. P. M. Woodhouse

(*b*) A Garage for a Large Country Mansion.

L. D. A. Church	C. H. Mitchell
J. Dickinson	A. T. Philp
W. Doddington	C. S. Picton
J. R. Edwards	E. W. Roberts
P. J. Gordon	M. C. Sunter
W. Holden	A. S. Tanner
N. Keep	G. Vinden

Designs for other subjects, from the following candidates, have also been approved:—

A. D. Kellock	G. Hemm
H. N. Fisher	I. Omar

Mid-Lanark Town-Planning Scheme.

At a meeting of the District Committee of the Middle Ward of Lanarkshire held recently, in pursuance of their town-planning policy, the Committee passed a resolution in connection with a scheme of town planning to embrace an area of between 5,000 and 6,000 acres, which includes Newton, Hallside, Carmyle, Mount Vernon, Baillieston, and Bargeddie. The area fixed by the Committee for their Cambuslang town-planning scheme was also under consideration. The proposals affect an area of 900 acres to the south of Cambuslang.

1st London Sanitary Company.

The 1st London (City of London) Sanitary Company, R.A.M.C. (T), are still wanting more recruits for Imperial Service. Men of nineteen to thirty-five, who are sanitary (or assistant) inspectors, or possess a good knowledge of sanitation, men in public health departments of borough, urban, or rural authorities, surveyors, engineers, carpenters, plumbers, etc., are specially required. There is a very good prospect of going abroad at an early date owing to sections being continually sent overseas. Applications for enlistment should be addressed to O.C., 1st London Sanitary Company, Duke of York's Headquarters, Room B 6, Chelsea, S.W.

1st London Divisional Engineers.

New Field and Signal Companies (212 and 240 men respectively) are again being raised by the 1st London Divisional Engineers (T.F.), as three of their units have already gone abroad on active service. Smart, intelligent men, worthy of the traditions of Royal Engineers for pluck and enterprise, are again wanted for the Field Companies, men connected with the building and constructional iron trades, all-round electricians, etc., and some drivers are needed. For the Signal Companies, young men of good education, especially telegraphists, electricians, instrument makers, and telephone operators, all of whom are taught to ride. Apply for further particulars, personally if possible, to the Headquarters, 10, Victoria Park-square, Bethnal Green, N.E., or to the Branch Recruiting Office, Labour Exchange, Edgware-road, N.W.

The Sale Bequest to the Nation.

Next month will be exhibited, in the Print Department, British Museum, the seventy-five water-colour drawings which the Museum Trustees have selected out of the collection made by the late Rev. C. J. Sale, Rector of Holt, near Worcester, which he bequeathed twenty years ago to the British Museum, subject to the life-interest therein of his widow,

recently deceased. The remainder of the collection, about eighty pictures in number, will, in terms of the testator's dispositions, be offered to the Worcester Corporation for the Victoria Institute. The Sale Collection embraces fine examples of Turner, David Cox, Prout, Hunt, Cattermole, Birket Foster, Peter de Wint, and Tayler. The Museum Trustees have chosen eighteen water-colours by David Cox and three by Turner, one of these being a sketch taken in Venice.

Gwydir Castle, Denbighshire.

The Marquis of Lincolnshire has placed the Castle in the market for sale, together with the fine collections of sixteenth and seventeenth-century furniture and tapestry, with carved oak panelling of the Tudor period and Spanish leather hangings. Gwydir Castle, the ancestral seat of the Wynnes of Gwydir, was erected in 1555 upon the site of an ancient fort, at the foot of a high rock—the Carreg-y-Gwalch, or Falcon Rock—by the west bank of the River Conway, and distant half a mile from Llanrwst. A portion of the old Castle was pulled down just one hundred years ago, and rebuilt upon a smaller scale, but after the style of the earlier building. The beautiful pleasure grounds are watered by the Conway. Mary, heiress of Sir Richard Wynne, brought the property in marriage, 1678, to the Marquis of Lindsey.

Church Building Society.

The Incorporated Church Building Society held its usual monthly meeting on the 18th ult. at the Society's House, 7, Dean's-yard, Westminster Abbey, S.W., Lieut.-Colonel the Hon. G. H. W. Windsor Clive in the chair. Grants of money were made in aid of the following objects, viz. :—Building a new church at St. John the Baptist, Belmont, Surrey, £130 for the first portion ; rebuilding the Church of St. Symphorian, Durrington, Worthing, £60 for the first portion ; and towards enlarging or otherwise improving the accommodation in the churches at Abington, St. Peter and St. Paul, Northants, £80 ; Croughton, All Saints, Northants, £30 ; Hoxton, St. Anne, Middlesex, £75 ; and Leonard Stanley, St. Swithin, Glos., £60. The following grants were also paid for works completed :—Winton, St. Luke, Bournemouth, £240 ; Northampton, St. Giles, £30 ; Newchapel, St. James, Staffs, £50 ; Crookesmoor, St. Nathanael, Sheffield, £400 ; and Load St. Mary, Christchurch, Somersetshire. £10. In addition to this the sum of £100 was paid towards the repairs of eleven churches from trust funds held by the Society.

Snowdon's Weights and Measures "Computor."

We have received a notice of a useful little device entitled "Snowdon's Weights and Measures Computor," which has been specially designed to save labour and by ensuring accuracy to shorten the labour of those who have dealings abroad, since, by its means, foreign money, weights and measures can be converted into English equivalents or *vice versâ* without the labour of calculation. The instrument closely resembles the familiar date indicator, and is equally easily manipulated by the movement of one or two handles. The range of the instrument is from ¼d. to 10s. per pound, gallon, or foot, but spools on which the figures are printed are in course of preparation, and will shortly be available for use by those who prefer to take as their value basis the currency of other countries. The spools are interchangeable. The instrument is portable, and costs 31s. 6d., being about 9 in. square by 3 in. thick, in oak, mahogany, or walnut cases, and separate spools cost 5s. each. Mr. F. Seaton-Snowdon is Associate Editor of *Page's Engineering Weekly*, and his address is No. 22, Henrietta-street, Covent Garden, W.C.

BOOKS.

Roman Decorative Paintings : Papers of the British School at Rome, 1914. (Macmillan. 21s. net.)

THIS is the first volume of the *Papers of the British School at Rome* as they will be issued for the future, less in bulk, that is, but produced annually instead of at irregular intervals, a change for which all connected with the School will be grateful. The first sixty-two pages are devoted to the publication of the Topham drawings at Eton, copies by Bartoli and others, of precious Roman paintings and mosaics now in many cases irretrievably lost. These have been collated by Dr. Ashby with the similar collections at Holkham and Windsor, and the result is a mass of new material of the greatest interest, not to the archæologist only, but to the architect and the art student in general. Limitations of space forbid the mention of more than one or two of the best. Plate VI., a landscape with temples and a bridge in the foreground, with a fisherman beside it, is worth many ground-plans, many ruins, to the student who would realise the life of ancient Rome, and so is Plate XIII., with its admirable façade and projecting peristyle surmounted by obelisks. Plate XVIII. is an elaborate scheme for a wall decoration, with its delicate Arabesques and admirable panel pictures ; while Plate XXI. is a delightful picture of a coast town—Puteoli probably—with a pier adorned with statues, columns, and triumphal arches and a galley in full sail in the foreground. Plate XXII. is a scheme of wall decoration in the non-fantastic style the charm of which it is not easy to exaggerate, and, like almost all the architectural landscapes of the period, is noteworthy for the use of urns to adorn the cornices of shrines and temples. What the colouring of these and kindred subjects was like Mrs. Strong's paper on "Ancient Wall Paintings in Rome" will show. The three-colour plates are but the shadows of the originals as they once were, but they are of great value as permanent records of the most perishable and the most neglected of all remains of Roman art. Two minor papers remain, the "Antiquities of Lanuvium" and the diary of a Tudor traveller making the Grand Tour in the reign of Queen Mary, in which Antwerp, that "cytie of mervelous wealth," comes in for as much enthusiasm as Rome. We notice one odd misprint, "hippopotamus" for "rhinoceros," on p. 11 (No. 29).

BOOK RECEIVED.

STRUCTURAL STEEL DRAFTING AND ELEMENTARY DESIGN. By Chas. D. Conklin, jun. (London : Chapman & Hall, Ltd. 10s. 6d. net.)

OBITUARY.

Mr. H. J. Austin.

In our last issue (p. 289 *ante*) we announced with regret the death, on March 22, at his residence, The Knoll, Lancaster, of Mr. Hubert James Austin, aged seventy-three years. Mr. Austin was the son of the Rev. T. Austin, Rector of Red Marshall, co. Durham ; he was educated at Richmond Grammar School, Yorks. He began his architectural career with his half-brother, Mr. Tom Austin, at Newcastle ; he then was for some years with Sir G. G. Scott ; in 1868 he became a partner of the late E. G. Paley (grandson of the author of "Paley's Evidences"), of Lancaster, under the style of Paley & Austin, latterly Paley, Austin, & Paley, and since Austin & Paley, and he succeeded as junior partner upon Mr. Paley's death on January 23, 1895. In 1893 the firm was nominated, by Ewan Christian, assessor, as one of the five architects in the final competition for Christ Hospital, Horsham. Their designs were illustrated in the *Builder* of August 11, 1894.

Of the chief works of Mr. Austin and the firm we may mention the Bell Tower, St. Michael's, Coventry, in competition (June 20, 1891*) ; School Chapel, Sedbergh ; churches of All Saints, Hertford (Perpendicular), in competition ; St. Thomas, St. Anne's-on-Sea ; at Cross Cop, Sandylands, Morecambe ; St. Silas, Blackburn ; Lower Ince, Wigan ; parish church, Skelmersdale, near Liverpool (late Perpendicular) ; St. Mark's, Dolphinholme, Lancs. ; Flookburgh, near Carnforth ; Barnacre, near Garstang ; St. Barnabas, Morecambe ; St. Thomas, Lytham ; St. George, Stockport ; St. Oswald, Preesall, Lancs. ; St. Anne, Blackpool ; St. John, Heysham ; Batterley, near Crewe (Twemlow Memorial) ; Altrincham ; Hindsford, near Atherton ; St. Mary Magdalene, Alsager ; Hornby, near Lancaster (the nave) ; Rawtenstall ; Holy Trinity, Bury ; St. Lawrence, Morecambe ; St. Peter, Bolton-le-Moors* ; SS. Matthew and James, Mossley Hill, Liverpool ; R.C. church, Lancaster ; St. Mary, Leigh ; Christ Church, Medlar ; St. Matthew (Memorial), Highfield, Pemberton ; Pilling parish, Morecambe Bay ; St. John, Ellel, Lancs., cruciform, with tower and spire ; Ashton-on-Ribble, Preston ; Walney Island, Barrow-in-Furness ; St. Mary, Widnes ; Waterloo (parish), Liverpool ; St. Mark, Basford Park, Newcastle ; Pudsey ; and St. Luke, Slyne—these churches for the most part being designed after the Decorated or Perpendicular styles. They were the architects for the restoration, enlargement, renovation, or completion of a large number of churches, including those of Mellor, Lancs.† ; Ulverston, and the new chancel ; St. Chad, Claughton† ; Worsthorne, Burnley,† and new tower ; Acton, Cheshire† ; Farnworth, Lancs.† ; St. John, Bretherton, Lancs. (renovation and new chancel) ; St. Andrew, Kildwick,† the "Lang Kirk o' Craven" ; Beetham, Lancs.† ; Winwick† ; Whicham, Lancs.† ; Burnage, Manchester, and High Bentham (enlargement) ; St. Patrick, Overton† ; Broughton-in-Furness (new tower) ; Bettws-y-Coed (tower) ; Unsworth (vestries, porch, etc.) ; Whitefield ; Skipton,† with north transept and remodelling of interior ; St. Cuthbert, Lytham (enlargement) ; Hindsford (tower) ; St. Mary, Lancaster (of which he was for many years a warden), with the new south porch and the "King's Own" Regiment Memorial Chapel ; St. Michael, Tonge, new chancel, vestries, side-chapel, etc. ; and Yarm (enlargement). Their designs were selected as one of the five sets chosen for the final competition, Liverpool Cathedral, out of ninety-nine competitive sets sent in (May 20, 1903*).

They were also the architects of the Lancaster and Skerton Co-operative Society's large premises, with warehouses, shops, and stables, in Lancaster, after the Renaissance style ; reredos, Howe Bridge Church, Manchester, executed in Italian marble by Messrs Shrigley & Hunt ; new buildings, Llandovery College, Carmarthen, with school-house and dinner-hall, and alteration of old buildings ; Keswick High School ; Royal Albert Asylum, Lancaster, the new wing ; prayer-desks, St. Michael's, Lichfield ; schools at Skerton, for the Lancaster School Board ; Barton-on-Irwell Schools : the Bank ; the Storey Institute ; the Nazareth Home, for 250 children and some aged folk, with chapel, detached blocks, etc., after the Tudor style ; and business premises for Mr. W. Atkinson—in Lancaster : Vicarage, St. Peter's, Accrington ; restoration of Thurland Castle (twice) and of Hoghton Tower, near Lancaster ; the monument to Lord Frederick Cavendish in Cartmel Priory Church ; rebuilding of Holker Hall after the fire ; Royal Infirmary, Lancaster ; new buildings with schools, chapel, etc., Ripley Hospital ; and Leeds Grammar School (in competition), extension and reconstruction.

Messrs. Austin & Paley were assessors for the restoration scheme, St. George's Church, Bolton ; they won a silver medal. Paris Exhibition, 1900 ; amongst their most recent work is the rebuilding, completed two months ago, of the ancient church of St. Michael, Cockermouth.

Mr. Austin was passionately devoted to music, and amongst his diversions were sketching and painting in water-colours. He married the daughter of Dr. James Langshaw, F.R.C.S., of Lancaster, and was left a widower five weeks ago. His two sons are architects—Mr. B. T. Austin, of Port Sunlight, and Mr. G. L. Austin, who has just been gazetted as lieutenant 4th Loyal North Lancashire Regiment.

Mr. E. C. Homer.

The late Mr. Edward Charles Homer was senior partner of the firm of Messrs. Homer & Lucas, of "Evelyn House," No. 62, Oxford-street, W., No. 35, Bucklersbury, E.C., and Oxford. Messrs. E. C. Homer, C. W. Lucas, and G. E. Phillips, of Penzance, architects and surveyors, dissolved partnership in so far as regarded Mr. Phillips in November, 1908. Mr. Homer was the architect of shops with residential flats above in Coldharbour-lane and in Ardville-road, and of Clifton Buildings, Brixton ; a large number of villas, Frinton-on-Sea, and the development of an estate, with the houses thereon, Clacton-on-Sea ; houses in Lindfield-gardens, Hampstead (Messrs. Homer & Ridler) ; and villas, Marine-parade, Bognor. Messrs. Homer & Lucas were the

* Illustrated in the *Builder*.

* Illustrated in the *Builder*.
† Restoration.

architects of a house, Hind-avenue, Frinton-on-Sea; villas, Church-lane, Finchley; cinematograph theatres in Fleet-road, Hampstead, Coldharbour-lane, Brixton, and Oxford; offices and Playgoers' Club, Leicester-square, W.C.; shops and offices, Nos. 6, 7, 8 and 9, Little Turnstile, W.C.; bank, business premises, and shops, George-street, Oxford; twenty cottages for Biggleswade Rural District Council at Langford; "Diamond House," 36–7–8, Hatton-garden, E.C.; housing schemes in Sandy, Beeston, and Potton, Beds., for Biggleswade Rural District Council; premises for Messrs. F. Coopers, Ltd., Oxford; No. 27, Old Bond-street for Messrs. Sothebys, and No. 70, New Bond-street, W.; and picture palace, Stratford-on-Avon.

Professor Robinson, C.E., F.G.S., F.S.I.

The death, on March 24, is announced of Professor Henry Robinson, aged seventy-eight years, who in 1880–1902 occupied the Chair of Civil Engineering at King's College, and in 1902 was elected Emeritus Professor there. He was educated in the Applied Science side, King's College. After some service upon the late Lord Armstrong's staff at the Elswick Works, he began to practise in Westminster as a civil engineer. He carried out the public hydraulic power scheme in Hull, being the earliest after its kind in England, and the electrical lighting installation for the borough of St. Pancras, with many railway, sewerage, water-supply, and other electrical lighting undertakings, as well as projects for the distribution of energy by means of compressed air, electricity, and hydraulic power. Professor Robinson was a Past-President of the Society of Engineers and Fellow of King's College, of the Surveyors' Institution, and of the Sanitary Institute.

CORRESPONDENCE.

Building Costs after the War.

SIR,—We entirely agree with "A. B. C.'s" letter appearing in your issue of March 19 last. We ourselves are in a difficult position, as we do not know whether to advise our clients to build at once or to wait six months, twelve months, or three years. In one particular case our clients are under a covenant to build any time during the next four years. Prices of material are, as you know, going up practically every week; labour is scarce and not of a very good class. There is no doubt that when the war is over a very large number of men will be released and labour will then probably be more plentiful; but, on the other hand, prices of materials may not go down; in fact they are very likely to go up owing to the enormous amount of materials that will be required for rebuilding Belgium and part of France and Poland. It is very probable also that many good-class mechanics in various trades will be attracted to Belgium and France by the higher wages they are likely to obtain. We hope that "A. B. C.'s" suggestion will be carried out and a definite pronouncement made.

GEORGE LANSDOWN & BROWN.

The London Joint Stock Bank, Lothbury.

SIR,—Referring to your photo and remarks in the issue of March 26, it is to be noted that the doorway to which you allude is not the original.

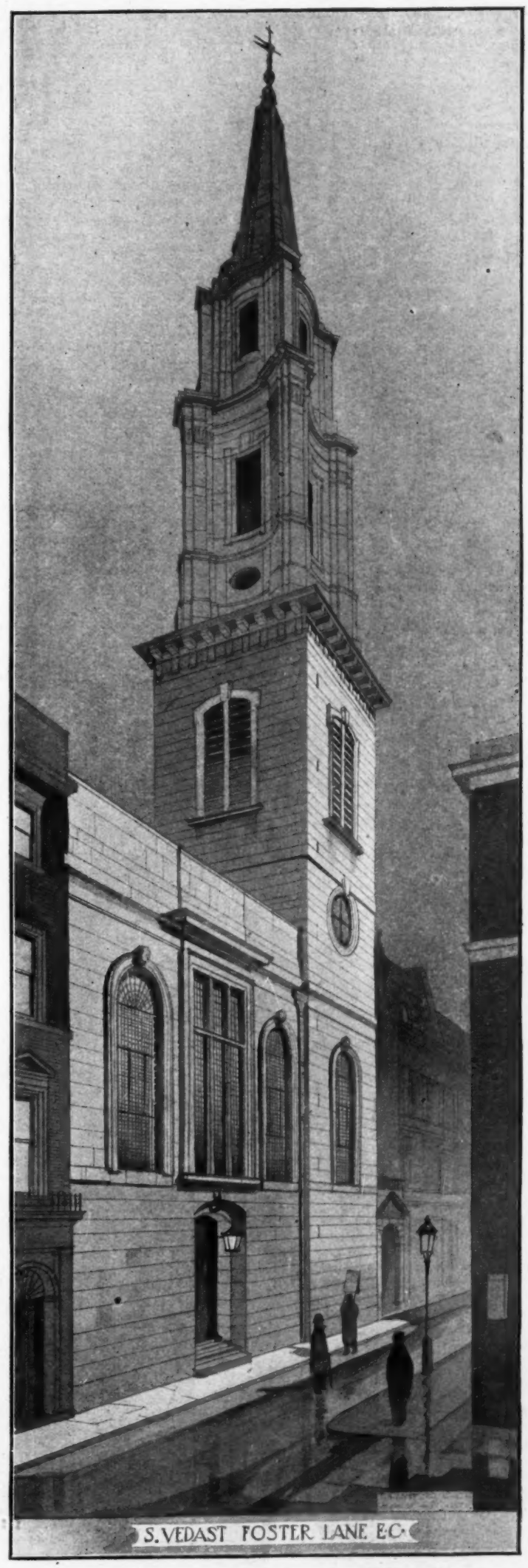
The entrance was up to 1871 at the other end of the front and was then removed to its present position under my superintendence by Messrs. Cubitt, the contractors to the Imperial Bank.

Some years later, when the premises were taken over by the London Joint Stock Bank, this entrance was enlarged and the projecting doorway erected by the architect to the Joint Stock Bank.

GEO. WAYMOUTH.

THE "ANTIQUARY."

We have received Vol. L. (January-December, 1914) of the *Antiquary*, the well-known monthly magazine published by Mr. Elliot Stock (Paternoster-row). The collected and bound parts of the *Antiquary* make an interesting and admirable volume, the contents including original articles, many of which are by able writers, notes, reviews of books, etc., The volume, which is well printed, contains numerous illustrations, and is published at 7s. 6d.



Measured and Drawn by Mr. T. Hansford White.

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ILLUSTRATIONS.

S. Vedast, Foster-Lane, E.C.

WE give some admirable reproductions of measured drawings of this well-known example of Wren's skill which were made by Mr. T. Hansford White, the son of Mr. W. H. White, F.R.I.B.A.

These drawings obtained the Fletcher Bursary and Medal at the Architectural Association. Both Mr. Hansford White and his brother, Mr. Leslie White, are Second Lieutenants in the Somerset Light Infantry, to which they were gazetted from the Inns of Court O.T.C.

The Rand Memorial, Johannesburg.

WE give illustrations of Mr. E. L. Lutyens' interesting design for the Rand Memorial, the details of which show the care which Mr. Lutyens displays in design.

The Majestic Theatre, Clapham.

THIS theatre is built on the site of the old Clapham Stores in High-street, Clapham, and possesses the distinction of being one of the largest cinema theatres in London. It has been erected practically regardless of expense, and accommodates nearly 3,000 persons comfortably. The shops in the High-street frontage were built and, except one, let before the site at the rear was acquired for this theatre, consequently only a comparatively narrow frontage could be obtained to the High-street.

This was gutted and partially rebuilt and forms an outer vestibule panelled in marble. The inner vestibule has been carried out in an old English style with an ingle-nook recess and seats. The walls are panelled in oak and the beamed ceiling is also carried out in oak, and Mr. Norman Carr was commissioned to execute a painted frieze illustrating the Spanish Armada, etc.

The auditorium is large and exceptionally lofty, with vaulted ceiling and sliding roof, and the walls are panelled in oak.

The stage is sufficient for stage plays, and there is a large balcony with boxes at the rear.

The consulting engineer was Mr. W. C. C. Hawtayne, M.Inst.E.E. The interior oakwork was executed by Messrs. Barker & Son, of Hitchin, the steelwork by Messrs. Drew-Bear, Perks, & Co., and the fibrous plaster-work by the Naverino Guild. The general contractor was Mr. A. N. Coles, of Plymouth, and the architect was Mr. J. Stanley Beard, of "Bank House," Westbourne-grove, W.

Typical French Shop Fronts.

THIS illustration is from a well-known French work on architecture, and it affords an excellent suggestion in design. We shall follow this with further illustrations of work of a similar character and interest.

THE WORSHIPFUL COMPANY OF PLUMBERS.

The following is a list of the plumbers registered for the month up to March 24: J. Woosey, St. Michaels, Liverpool; S. Partington, East Wigan; A. Sidey, Comrie; T. C. Robertson, Dundee; Roy Hislop, Leeds; L. Matthews, Harehills, Leeds; S. Wibberley, Holbeck, Leeds.

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current competitions is printed on page 323.

Housing Competition, Whitehaven.

Members and Licentiates of the Royal Institute of British Architects are advised that the conditions of this competition are not in accordance with the Institute regulations for Architectural Competitions, and the Competitions Committee are in correspondence with the promoters with a view to their amendment.

Members of the Society of Architects are notified that some of the conditions of this competition are considered unsatisfactory. The Society is in communication with the promoters and is endeavouring to get the conditions amended.

FIFTY YEARS AGO.

The Bath-Forum Competition, Bath.

AT the last meeting of the Bath Town Council, held on the 21st ultimo, the Committee brought up a report in which they said:—

"The Committee resolved to hear from Messrs. Wilson & Wilcox, in the presence of Mr. Clark, the referee, on what grounds their estimate differed so widely from his. Their chief reason was that Mr. Clark had cubed the work at 5½d. per foot, whereas they could show that they had erected buildings of the same style of work as that required by the Corporation for 4d. per foot, and they represented that this difference would bring the building proposed by them within the requisite limits. They also stated that if the Corporation, approving generally of their plan, wished the principal rooms to be more lofty, the additional height could be gained by subtracting from the upper rooms without either altering the entire cost or producing any disadvantage.

It was obvious to the Committee that, having heard this statement from Messrs. Wilson & Wilcox, they were bound to give Mr. Davis an opportunity of submitting his case likewise. Accordingly they requested him to meet them for this purpose also in the presence of the referee. Mr. Davis complied with the request, and expressed his opinion that the estimate of Mr. Clark should have been 4d. rather than 5½d. per cube foot, and that, if his plan were estimated at the lower sum, the cost would be reduced to very nearly the sum named by the Council. Mr. Davis's views, as well as those of Messrs. Wilson & Wilcox, may be best presented in their own letters, from which the Council can form an opinion as to the course recommended by the Committee.

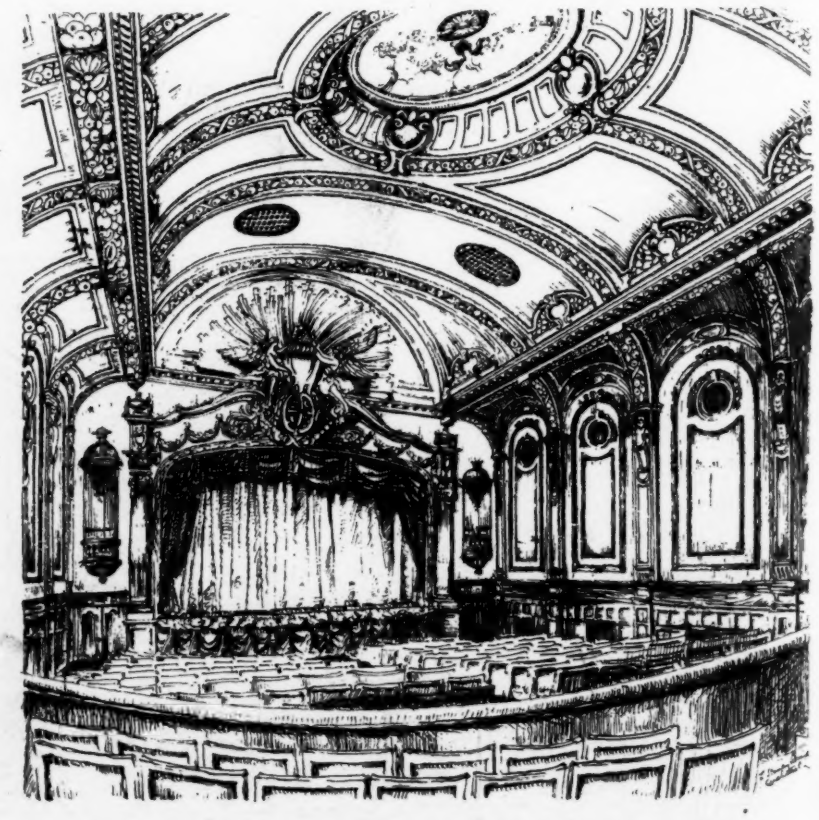
Taking into consideration all the facts of the case, the Committee have come to the conclusion that the premiums ought now to be awarded as originally proposed—the first to Mr. Davis, the second to Messrs. Wilson & Wilcox."

The Mayor moved the adoption of the report and a long discussion followed. Alderman Gore moved as an amendment, "That the report of the Committee be adopted, except so far as it related to the adjudication of the premiums, and that the first premium be awarded to Messrs. Wilson & Wilcox."

[*** We give the above extract from the *Builder* of April 1, 1865.]

BELGIUM TOWN PLANNING COMMITTEE.

Viscount Bryce, O.M., has consented to become President of the newly formed Belgium Town Planning Committee which has been constituted by the amalgamation of the various committees previously considering the question of the replanning of Belgium. The Committee, which is under the patronage of the Belgian Government, has Mr. Raymond Unwin as Chairman and Mr. Ewart G. Culpin as Secretary. Following upon the recent highly successful conference at the Guildhall, London, the next step will be the opening of a Belgian exhibition at University College, Gower-street, W.C. It is hoped that Lord Bryce will open the exhibition on April 6, and it will remain open until the end of the month. At the same time study circles of architects, lawyers, and others will be instituted for the consideration of the actual facts of town planning, but on the legal and technical sides; lectures and conferences will be held for municipal councillors and the general body of the public in order to educate them in these matters. University College has kindly provided studio and office accommodation.



The Majestic Cinema Theatre, Clapham: Interior View.

Mr. J. Stanley Beard, Architect.

LEGAL SECTION.

NOTES ON CURRENT CASES.

Ledbury Rural District Council *v.* Lady Henry Somerset:

Extraordinary Traffic.

THIS case, which was recently before the Court of Appeal on appeal from the decision of Mr. Justice Lush, again raises the important question of the responsibility incurred by the haulage of materials along the highways, especially as there is scarcely a building of any magnitude erected at the present day which has not to be provided with materials drawn by mechanical traction which many roads are still unfitted to bear.

At common law any person could use the roads as he pleased and no action for what is now regarded as extraordinary traffic could be brought against him, but when large traction engines came into use Acts of Parliament were passed to make their users responsible for the cost of the renewal and repair of the roads over which they hauled materials. By some of the earlier statutes methods which we should now regard as quaint and unusual were adopted to check undue loads upon the highway. For example, in the year 1718 an Act was passed "for making more effectual the several Acts passed for repairing and amending the highways of this kingdom," and the person who conveyed more than one tree or one block of stone or marble on a wagon with six horses, or on a cart with three horses, was liable to have all the horses above six in a wagon, or above three in a cart, "together with all gears, bridles, halters, and accoutrements," forfeited to any person who might seize them.

Again, in the year 1719 an Act was passed to prevent "decay of the roads within ten miles of the cities of London and Westminster," and it was enacted, *inter alia*, that any person carrying "at any one load in the said Cities of London and Westminster, or within ten miles thereof, in Wagons or Carts having their wheels, shod or bound with Tire or Streaks of Iron, more than seven hundred and a half of bricks, shall forfeit and lose any one of the horses, together with the Gears, Bridles, and Halters therewith used to any person that shall seize or distrain the same."

By the Highways Act, 1835, which consolidated the law with regard to highways, a penalty is inflicted on anyone causing wilful injury or damage to the highway, over and above the damages occasioned, but this provision does not apply to extraordinary traffic, which was made lawful by the Highways and Locomotives (Amendment) Act of 1878 upon the condition that the cost of repairs incidental to the excessive weight or extraordinary traffic should be borne by the person causing injury to the highway thereby.

The first Act to regulate the use of traction engines on highways was the Locomotives Act of 1861, which provided for a toll on the then recently introduced road locomotives, and prescribed the width of tyres and weight of the engine. This was amended by the Act of 1878 which, together with the Locomotives Act of 1898, now governs the width of the wheels and limits the weight of the locomotive to be used on a highway, and provides for payment to the highway authority of the cost of repairs of their roads due to excessive weights or extraordinary traffic.

The position often arises that a contractor is tendering for the erection of a large building on a site which can only be approached by a narrow road leading from a main road, and such approach road, although it has a fair surface, yet has no foundation sufficient to stand continuous heavy traffic, and the question he has to ask is what is likely to be the extent of his liability in using such road for the haulage of materials.

If mechanical traction is used the locomotive must conform to the width of wheels and be within the limit of weight, and the loads drawn must be within the limits of weights prescribed by statute, or the user or owner of the locomotive and trucks will be liable to a penalty on summary conviction; but if these enactments are complied with the person responsible for the haulage will not be relieved of the expense of repairing roads which have been damaged by excessive weight or extraordinary traffic thereon.

The expense which can be recovered from the person, "by or in consequence of whose order such weight or traffic has been conducted," is the expense which has been incurred by the authority which has undertaken the repair of the highway over and above "the average expense of repairing highways in the neighbourhood." This expense therefore cannot be ascertained until the work has been completed and the cost computed.

These provisions have been the subject of much litigation, and even at the present time their meaning is not absolutely clear, but the position appears to be that, provided the ordinary traffic on the highway has continued normal since the contractor came upon the scene a *prima facie* case of extraordinary traffic is made out if, during the time the contractors' haulage has been going on, the cost of the repair of the highway has exceeded the average expense of repairing similar highways of the neighbourhood.

It will be seen that the test by which the expense is determined is not the amount of traffic but the cost of repair consequent upon the traffic, so that if a road has a good foundation and a properly formed surface there may be little or no cost to the contractor, whereas if the road has not been properly constructed a heavy liability may be thrown upon him. Conditions of weather, too, will have a great influence upon the manner in which a road will stand heavy or continuous traffic, so that a contractor has to take the possibility of this expense into consideration and provide for it accordingly.

Questions have often arisen as to the basis upon which the liability for the expense is to be determined. In Pickering Lythe East Highway Board *v.* Barry (1882) 46 J.P. 215, where a contractor was summoned for the damage caused by excessive weights or extraordinary traffic over certain highways in connection with the haulage of materials for the construction of a dwelling-house, etc., it appeared that for several months carts containing heavy building materials were almost daily on the road, and the Justices found that the traffic was in aggregate weight and in quantity excessive and extraordinary as compared with the ordinary traffic along the highway, which was light agricultural traffic, and that the highway was damaged thereby, also that the amount expended on the highway by reason thereof was in excess of the average expense of repairing highways in the neighbourhood, and was an extraordinary expense incurred by reason of such damage, but that the traffic did not materially differ in character from that to be expected on the highway. On appeal to the Queen's Bench Division, it was held that the contractor was not liable for the damage to the highway on the ground that the Legislature intended something unusual in weight, or extraordinary in the kind of traffic, either as compared with what is usually carried over roads of the same nature in the neighbourhood, or as compared with that which the road in its ordinary and fair use may be reasonably subjected to. Mr. Justice Lopes said that it would not be sufficient to compare the weight and traffic complained of with the traffic usually carried on the particular road; it might be the traffic was usually of the lightest kind, but surely the Legislature never intended that a man was not to use the road for carrying materials for building a dwelling-house, provided he used it in a reasonable way for those purposes.

The above case decided that the liability was to be ascertained by comparing the kind of traffic on the particular road in question with the traffic over roads of the same nature in the neighbourhood, but this was overruled by Hill *v.* Thomas (1893) 2 Q.B. 333. In this case the contractors carted shingle and cement from barges over a road to construct a battery at a Government fort, and the justices found that the total quantity of the materials was a very great addition to the usual total traffic, and that the road was cut up and expenditure incurred in consequence of this unusual traffic, although none of the carts conveying materials carried greater weights than those usual for agricultural and other purposes in the neighbourhood. The Court of Appeal, in affirming the decision of the justices, held that the decision in the Pickering case had been based "on an imperfect view of the Act of Parliament," and decided that "excessive weight" applied merely to the cargo carried by a single vehicle, whilst "extraordinary traffic" includes all such continuous or repeated user of the road by a person's vehicles as is out of the common order of traffic, and as may be calculated to damage the highway and increase the expenditure on its repair; and it must be so exceptional in the quantity of articles carried, or in the mode or time of user of the road as substantially to alter and increase the burden imposed by ordinary traffic on the road, and thereby to cause damage and expense beyond what is common; and, further, the traffic must be extraordinary as regards the ordinary user of the road by all who use it, and not merely large as regards the traffic put on it by other specific persons.

This case confined the comparison of the damage to the particular road in question, before and after the unusual traffic, without regard to the other roads in the neighbourhood, and seemed to infer that the comparison of the expense was to be similarly limited. It also eliminated any distinction as to the kind of goods carried over the roads.

Lord Justice Bowen, in his judgment, said:—"A contractor builds a large house, or factory, or church, and by so doing temporarily increases the use of the road in a way that ends by damaging the road itself. Why should he not pay for the extra use of the road? The Act is not intended only to prevent unlawful use; it applies also to damage caused by legitimate and proper user . . . it is remedial and recuperative because, though he carries ordinary articles, he does not carry them in the manner, or on the limited number of occasions in and on which other people carry them, and, because the frequency of his travels over the road has caused the special mischief to the road, that such frequency constitutes in itself a reason why he should pay more than his neighbour." This case followed that of Williams *v.* Davies (1880), where it had been held that the haulage of sixty-seven loads of timber between Christmas and March were a greater number of timber-loads than usually passed over the roads in question in three consecutive months, and the heavier loads, being greater than the loads of ordinary agricultural produce, the damage to the road was due to excessive weight and extraordinary traffic as the traffic was to be compared with the ordinary traffic along the road.

The next case of importance is that of Morpeth Rural District Council *v.* Bullocks Hall Colliery Company, Ltd. (1913) 2 K.B. 7, C.A., in which the Court of Appeal defined the basis on which the expense was to be calculated. In this action, brought by a highway authority to recover expense incurred by them in repairing a highway in their district, which they alleged to have been damaged by extraordinary traffic conducted thereon by order of the defendants, which expense was alleged to be extraordinary, having regard to the average expense of similar highways in the neighbourhood, the Court ordered the plaintiffs to deliver to the defendants the best particulars they could of the average expense for the past five years of the similar highways in the neighbourhood, stating the cost of labour, the establishment charges, and the nature and amount and cost of materials; but refused to order the plaintiffs to deliver to the defendants particulars of the average expense for the past five years of the specific highway damaged, as these particulars did not appertain to the plaintiffs' claim, but were rather matters of defence which were to be ascertained by discovery and inspection of the plaintiffs' books or upon interrogations.

The above case followed that of Billericay Rural Council *v.* Poplar Union and Keeling (1911), 2 K.B. 801, in which it was held that the local authority must, in order to succeed, prove that the expenses incurred by them in the repair of a highway were "extraordinary" and, for the purpose of determining whether they were so, regard must be had to

the average expense of repairing similar highways in the neighbourhood.

The expense therefore upon which the comparison has to be based is not merely "the average expense of repairing highways in the neighbourhood," but it must be "similar" highways in the neighbourhood.

But granted that there has been "extraordinary traffic," the question remains as to who is the person "by or in consequence of whose order" such traffic has been conducted, since he is liable for the cost of the repairs.

In the case of the Kent County Council *v.* Lord Gerard (1897), Appeal Cases, 633, it was sought to make Lord Gerard responsible for the cost of repairing roads caused by the delivery of materials required for improvements at his residence, he having contracted with several persons for the delivery of the materials, including carriage. Lord Gerard knew that the contractors intended to send the materials along a certain highway by traction engines and trucks, but he did not employ or pay the carriers, or give directions as to the route or the mode of conveyance.

The case went through various phases before a decision was arrived at. The Justices at Petty Sessions held that the respondent was liable to pay the cost of repairs, amounting to £750. This was reversed by the Court of Quarter Sessions, whose decision was in turn reversed by the Court of Queen's Bench Division. This was in turn reversed by the Court of Appeal, which restored the decision of Quarter Sessions with costs, and Lord Gerard was held not to be the "person by whose order such weight or traffic had been conducted" within the meaning of the Act, and that he was not liable for the expense. The Act of 1898 added words which amended the Act of 1878 to read "by or in consequence of whose order," but nevertheless a similar decision was arrived at in the case of Egham Rural District Council *v.* Gordon (1902), 2 K.B. 122. The defendant gave an order for the delivery of 250,000 bricks on the site of his proposed house. The brick-makers, without the knowledge of the defendant, made arrangements with a contractor for the delivery of the bricks by means of a traction engine and trucks. It was admitted that the road had been damaged by the use of the traction engine and trucks, and that it would not have been damaged if the bricks had been delivered in carts in the ordinary way. It was held that the roads had been damaged by excessive weight, but that the damage was not caused "by or in consequence of" the defendant's order.

In the case of Reigate Rural District Council *v.* Sutton District Water Company (1907), 71 J.P. 405, the owners were held responsible, although they had let the work to a contractor. The defendants entered into a contract with a contractor to construct a reservoir for them in four months. The contract did not specify the method or route of haulage to be employed in bringing the requisite materials to the site. The contractor for eight months employed traction engines and trucks over second and third class district roads to bring the materials from the railway-station to the reservoir, a distance of about a mile and a quarter. A surveyor called as witness by the plaintiffs said that "the same weight of stuff taken in carts during the same period would not have done injury," and the defendant's engineer, called by the plaintiffs, said, "I thought the contractor would lay a light railway across the fields from the goods station without going on the roads at all." The County Court judge held that there was no evidence that the traffic had been conducted on these roads in consequence of the orders of the defendants, but the Divisional Court, on appeal, reversed this decision. In the course of his judgment Mr. Justice Darling said that the words "in consequence of" means "as a natural consequence of the order which was given, neither the inevitable nor the necessary consequence of that order." He thought that the learned County Court judge had not evidence before him which entitled him to come to the conclusion that the hauling of the gravel or ballast along these roads on traction engines, which had the effect they did have, was not the natural consequence of the order given in the contract entered into by the defendants. He said that one would assume in giving an order that the work would be done according to the usual methods, and then only those which were the natural consequences would follow from these methods being employed. He could not see any evidence upon which the learned County Court judge could have come to the conclusion that haulage by means of traction engines was not the usual method of doing the work, and that what was done was not the natural consequence of the order to do the work being given by the defendants. Mr. Justice Lawrence, in his judgment, said that the liability of the defendants depended upon whether the traffic was traffic in consequence of their orders. He thought that the facts showed that it was in consequence of defendants' orders, and that the onus was upon them to show that some method was in fact adopted which was not the natural method which they would have contemplated when they gave the order. He could not see any evidence that the method adopted was not the usual method of doing such work. "The job had to be done in four months, and I say a man with his eyes shut would say that they would be sure to have traction engines if they had to do that."

In the case of Windlesham Urban District Council *v.* Seward and others (Eveleigh third party) (1912), 77 J.P. 161, a building owner contracted with a firm of brick-makers to supply him with bricks upon a building site. The quotation was for conveyance both (1) by carts and (2) by traction engine. The brick-makers sublet the haulage to another firm. The haulage of the bricks continued for about eight months and the plaintiffs claimed from the building owner and the brick-makers the cost of repairing the roads, damaged by reason of the excessive weight and extraordinary traffic brought on to it in consequence of the order of the defendants. The learned County Court judge found that the road in question was an ordinary county road, and was constructed for the purpose of bearing the class of traffic which might be expected on an ordinary road—viz., agricultural carts, carriages, tradesmen's carts, motor-cars, etc., also that there had been conveyed over the road by traction engine and trucks about 211,000 bricks, which had been conveyed in about thirty-eight journeys. He also found that the case of extraordinary traffic had been made out on the ground of traction traffic being something more than the road was normally intended to bear. On the question of the expense incurred the learned judge, following the decision in Billericay Urban District Council *v.* Poplar Poor Law Union (*supra*), held that for the purpose of their determination regard must be had to the average expense of repairing similar highways in the neighbourhood, and to do this it was necessary to ascertain what is the ordinary average expenditure on comparable roads in the neighbourhood, taking the life of the road into consideration, but not including the cost arising from the betterment of the road. The decision of the learned County Court judge that the brick-makers were responsible for the expense of the road repairs was appealed, but on the case coming before the Divisional Court his judgment was affirmed on the ground that the damage caused to the road was in consequence of the order given by the brick-makers, and, following Egham Rural District Council *v.* Gordon (*supra*), that, although the building owner had given an order for the bricks, yet it was not whoever gave an order that was responsible for everything which was done by the person to whom he gave it, but it must be gathered from the evidence who was the person from whom the order flowed which, as a necessary or natural consequence of its execution, caused the extraordinary traffic which resulted in damage to the highway. This case is interesting from an observation made by Mr. Justice Scrutton that in his view of sect. 23 of the Locomotives (Amendment) Act, 1878, there is no reason why both the building owner and the contractor, or either of them, should not be responsible, the words, "by whose order," bringing in the contractor, and the words, "in consequence of whose order," bringing in the building owner. Mr. Justice Ridley thought that the sub-contractor would also be liable.

Up to the present these complications have not been added to an already numerous series of decisions on this question, but they may arise at any time upon the construction of a carelessly-drawn specification or contract.

In the recent case of Worsborough Urban District Council *v.* Barnsley British Co-operative Society, Ltd. (1914), 78 J.P. 425, the Court of Appeal adopted the test laid down in a previous case by Mr. Justice Wills that "traffic was extraordinary until the particular traffic in question has, by the usage of trade and of society, and by the varying circumstances applicable to the case, by that time become such as can fairly be called ordinary traffic."

This dictum was also followed in the present case of Ledbury Rural District Council (1915), 12 W.N., in which there had been a gradual increase in the amount of stone hauled year by year by traction engines from a quarry, but Mr. Justice Lush held that the plaintiffs failed to prove that there had been any extraordinary traffic on the ground that, provided it is conveyed along a road which is adapted to it, and provided that it has become "ordinary" in the sense that it is ordinarily to be seen on that road and is to be expected in the ordinary course, it is, so far as the character of the traffic is concerned, not extraordinary, but ordinary traffic.

The decision of Mr. Justice Lush was affirmed by the Court of Appeal on March 10 last.

Hamilton *v.* Marconi, Ltd.: Responsibility of Principals to Agents.

This case, which has recently occupied the attention of Mr. Justice Avory and a special jury for nearly three weeks, involved issues respecting the responsibility of principals to their agents.

The plaintiff was appointed whole time sole agent for the defendants' wireless telegraph business in Australia, New Zealand, and the Pacific Islands, and a term of the agreement was that the defendants should from time to time supply the plaintiff with information relating to their business in connection with any inquiries which the plaintiff might send to them. At the time plaintiff left England, on August 6, 1910, to take up his work in Australia, tenders had been sent in to the Australian Government for two long-distance wireless installations, and the tender of the Australian Wireless Company had been provisionally accepted owing to the lowness of the price. It transpired that this tender was based upon the use of the German Telefunken system, and it was hoped that on patriotic grounds the matter would be reconsidered, and that if a lower price could be submitted by the British company the business would be placed in their hands.

It appeared from the evidence that the plaintiff spent three months in the London offices of the Marconi Company before leaving for Australia, during which time he made himself conversant with the business of the company, and he was supplied with such papers and information as he requested. On August 9, 1910, however, plaintiff wrote from near Madeira asking that he might be supplied with full information for an alternative tender based upon the Marconi Company's experience, as he thought the matter would be reopened by the Australian Government. To this inquiry a reply was sent that such information would be forwarded, but it appeared that it was not sent until a definite inquiry was asked for by cable in the month of November, when the Marconi Company at once cabled prices and particulars for the installations. The plaintiff stated that some of the cables were misdirected, and he complained that this information arrived too late to enable him to successfully deal with the matter, with the result that the original tender of the Australian Wireless Company was definitely accepted. The jury found that there had been a breach of the agreement in not supplying information to the plaintiff, although they awarded no damages in respect of it.

A further point of interest in the case was that the agent, being engaged for his whole time, with a payment of £50 a month towards expenses, took up matters outside sales and negotiations for sales. He was encouraged to proceed with such matters by his employers, and the jury found that he was entitled to be paid for these services upon the basis of a *quantum meruit*.

LAW REPORTS.

COURT OF APPEAL.

(Before Lords Justices BUCKLEY, PICKFORD, and BANKES.)

Building Contracts and Sub-Contractors: Hampton *v.* Glamorgan County Council.

THEIR Lordships heard last week the appeal of the defendants from a judgment of Mr. Justice Horridge, awarding the plaintiff, Mr. Reginald Moore Hampton (trading as Messrs. Hampton & Co.), of Cardiff, £197 17s., balance of an account for a heating apparatus he had

supplied to a girl's school at Pontypridd. In the Court below the Council had repudiated liability.

A building contractor named Mr. Shale, of Llandaff, obtained a contract with the County Council for the erection of the schools at a cost of £13,600. Subsequently Mr. Shale made a deed of arrangement with his creditors, and the Council said that, having paid Mr. Shale and his trustee under the arrangement the money due, they would be paying twice over if they paid the plaintiff. The plaintiff, they said, was a sub-contractor under Mr. Shale, and the letters of Messrs. Evans, Williams, & Evans, the architects, showed this.

Mr. A. Adair Roche, K.C., for the appellants, said there was an important principle involved, and the Council were appealing because of this. The contract with Mr. Shale provided for certain prime cost items, one of them being a heating apparatus. Mr. Shale contracted with the plaintiff for this. Up to the time of Mr. Shale's deed of arrangement all payments on the architects' certificates were made direct from the Council to Mr. Shale and from Mr. Shale to Mr. Hampton. After the deed of arrangement Mr. Hampton demanded the balance of his account from the Council on the ground that Mr. Shale was acting as their agent. Mr. Justice Horridge had decided that Mr. Shale was the agent and that the Council were responsible.

Counsel submitted that that was entirely wrong, as the correspondence showed. If the judgment of the learned Judge was correct, said Counsel, all building contracts would be liable to be upset. The architects certainly approved of Mr. Hampton as a sub-contractor, and arranged with him in a preliminary way what would be required of him; but that did not make a contract between the Council and Mr. Hampton, because the heating apparatus was provided for in the chief contract. This was borne out by the fact that when the plaintiff applied to Messrs. Evans, Williams, & Evans, the architects, for £200 on account, they replied that they only issued certificates to the chief contractor. The architects directed Mr. Shale to enter into the sub-contract, and in consequence of that it was alleged, in the statement of claim, that the architects had pledged the credit of the Council, but that had been abandoned.

On behalf of the respondent (Mr. Hampton), Mr. Fortune contended that the learned Judge was right in his finding. The architects had very wide powers, and it was clear, he thought, on the correspondence, that they intended the Council to deal direct with Mr. Hampton, and that Mr. Shale was merely the agent for the conduit pipe. The architects and Mr. Hampton had been negotiating for two months before Mr. Shale had his contract with the Council.

Lord Justice Pickford observed that there had been no request by the Council for tenders for the heating apparatus, and no tenders had been sent to them, but they were sent to the architects.

Counsel said that showed the contract was with the Council. The Council were to get the benefit of the contract with Mr. Hampton and not Mr. Shale. It was not to Mr. Shale's interest to make the contract with Mr. Hampton. Mr. Hampton was always under the impression he was dealing direct with the Council, and when the surety was appointed after Mr. Shale's arrangement Mr. Hampton refused to acknowledge him. Then his client finished the work himself.

Counsel said he could only rely upon the documents to show that Mr. Hampton had a contract with the County Council, either through the architects or the contractor.

After further argument the Court held that the contract was not between Mr. Hampton and the County Council, but between Mr. Hampton and Mr. Shale. The appeal would be allowed and judgment entered for the defendants, with costs.

KING'S BENCH DIVISION.
(Before Mr. Justice SANKEY.)

Action by Builders for Breach of Contract: Wheeler Bros. (of Reading), Ltd. *v.* Wills.

THE hearing of this case concluded on March 23, an action by the plaintiff builders of Reading to recover from the defendant, Captain Arnold S. Wills, of Thornby Hall, Northamptonshire, damages for alleged breach of contract.

Mr. Pollock, K.C., and Mr. Nielson appeared for the plaintiffs, and Mr. T. Hollis Walker, K.C., and Mr. B. A. Cohen appeared for the defendant.

In opening the case for the plaintiffs, Mr. Pollock observed that the action was brought in respect of work done by the plaintiffs for the defendant. In 1912 Capt. Wills was minded to build a new house on the site of Thornby Hall, and early in that year he got into communication with Mr. E. B. Hoare, of the firm of Messrs. Hoare & Wheeler, architects. Mr. Hoare prepared the plans and designs of the house which Capt. Wills intended to build. Thornby Hall was a very old house, and it was the intention of Capt. Wills to reproduce it and reset some of the good work in the fine old building. The designs were submitted to Messrs. Wheeler Bros., and they ultimately arrived at such a position that the quantities were taken out. On August 8 that year the cost of building the house was discussed, and then Capt. Wills was rather uncertain as to whether he was wise to build his new house on the same site. Another site was finally considered, and the total cost of the building which was submitted was £47,000. The house was to be called "Thornby Court," and it was to be a very considerable mansion with a racket court and polo ground attached. It was decided in October to utilise the plans which were prepared for Thornby Hall. The ground was pegged out on October 22, and the foundations were dug out. The matter was submitted to Messrs. Wheeler Bros., of which firm Mr. E. B. Hoare's partner was Chairman. Capt. Wills thought the work would be better in the hands of architects and builders who were associated. The work was commenced and the order was given by Mr. Hoare on behalf of the defendant on October 17, 1912. Very many preparations had been made by the plaintiffs for the building of this large house. Just after Christmas in 1912 Capt. Wills decided not to have the house built, and gave an order for the work which had been done to be made good. Proceeding, counsel said the result was this:—The plaintiffs found themselves in a position that they were entitled to claim a considerable sum. A certificate had been issued by Mr. Hoare to the plaintiffs to go on with the work, and counsel submitted that his clients were entitled to full payment for the work which had been done. Workmen had been engaged for the work and took up residence in Thornby Village.

The defendant denied that there was a contract for the work. He had paid a sum into court for the work done and the clearing away of the scaffolding, but he had paid nothing in respect to the timber.

Mr. Edward B. Hoare, partner of Messrs. Hoare & Wheeler, architects, of 22, Portland-street, W., said he was engaged to do the architectural work for Capt. Wills. When the plans were sufficiently complete to send to the quantity surveyors—Messrs. Cooper & Sons—witness suggested to Capt. Wills that the quantities should be sent to Messrs. Wheeler, Ltd., for them to estimate to build the house. Witness's partner was the Chairman of Messrs. Wheeler, Ltd., of Reading, who estimated to build the house for £47,000. When witness interviewed Capt. Wills they both understood that the house should be built.

Mr. John Corderoy Cheshire, managing director of the plaintiff company, gave evidence in support of counsel's opening statement. He visited Thornby Hall with a works foreman and pegged the ground out. Instructions were given to him by the architect on the new site when Capt. and Mrs. Wills were present.

His Lordship: What I feel about this is the only orders that were given to build the house was on March 16. Mr. Hoare may have thought that he got definite instructions. Supposing the defendant were right, the plaintiffs would have a most excellent action against Mr. Hoare, unless the plaintiffs bring home that Capt. Wills ratified the instructions.

Mr. Pollock: I suggest that Capt. Wills was present when these instructions were being given to Mr. Cheshire.

Capt. Arnold Wills, giving evidence, said he was now a captain in the 18th Hussars. When he was in communication with Mr. Hoare witness told him that he did not want the total cost to exceed £30,000. He did not give Mr. Hoare any instructions to build the house at all. There was no contract signed for the building of the house. On two previous jobs which the plaintiffs did for witness there were written contracts for the work. Mr. Hoare never told him that he had entered into a contract with the builders on his (Capt. Wills's) behalf.

In cross-examination by Mr. Pollock, witness admitted that a clerk of the works was engaged at £3 a week.

In giving judgment, his Lordship observed that the evidence given by Capt. Wills was very unsatisfactory. He did not think what he had said in the box was wilfully untrue, but he thought he should have told him more of the matters than he did. The evidence he gave was either nonsense or untrue. He gave Capt. Wills the benefit of the doubt and put the evidence down as nonsense. He entirely accepted the evidence of Mr. Hoare, and he was satisfied that Mr. Hoare was instructed by Capt. Wills to build the house, and he held that the contract was entered into.

His Lordship allowed £525 as damages, and £425 on the account, making a total of £950 in favour of the plaintiffs.

Judgment was entered accordingly.

KING'S BENCH DIVISION.
(Before Mr. Justice DARLING.)

Quantity Surveyor's Fees: Richardson *v.* Pillivant.

THIS was an action by which Mr. E. E. Richardson, quantity surveyor, of Sylvan-avenue, Mill Hill, N.W., sought to recover from the defendant, Mr. F. T. Pillivant, of Bath-street, City-road, £281, being the amount alleged to be due for professional services rendered in respect of a building to be erected by the defendant at Wiltshire-row, Hoxton. The plaintiff's claim was made up of two items, viz., in respect of lithography for copying, etc., £14 5s., and reasonable remuneration for services as quantity surveyor in taking out quantities, 2½ per cent. on the lowest tender of £10,900, £266 5s. The defendant, in his defence, said, if his architect had implied authority to employ the plaintiff, it was revoked by a letter of the defendant to his architect before he (the architect) employed the plaintiff, in which the defendant said: "It must be quite understood, so as to avoid any misunderstanding, that no expense is to be incurred for me except I agree to it in writing."

The defendant also denied that he had any notice of the employment of the plaintiff, or that he agreed to employ him. Defendant alleged that the amount claimed was unreasonable and excessive.

Mr. E. G. Hemmerde, K.C., and Mr. G. A. Scott appeared for the plaintiff; and Mr H. F. Dickens, K.C., and Mr. S. P. J. Martin for the defendant.

Mr. Hemmerde said the plaintiff sought to recover fees from the defendant for certain work done on behalf of the defendant. The plaintiff was employed by the defendant's architect, Mr. H. Duffield, F.R.I.B.A., to get out certain bills of quantities; and the plaintiff's case was that Mr. Duffield, being the accredited architect of the defendant, he had the implied authority of the defendant to engage a quantity surveyor. It appeared that some time prior to 1913 defendant desired to obtain larger premises for his business as a cardboard-box manufacturer, and he engaged Mr. Duffield as his architect. Tenders were asked for, but counsel said the matter eventually fell through. Defendant had set up a letter revoking any authority to the architect, but counsel contended that an accredited architect had the right to employ a quantity surveyor. This implied authority was known and recognised throughout the profession, and his client had the right to assume that he had been properly engaged. In this case tenders were actually asked for, and the lowest tender was that of Messrs. Mattock & Parsons for £10,900; but the defendant relinquished the erection of his factory.

The plaintiff gave evidence in support of his case, and that his charges were fair and reasonable.

The evidence of Mr. Duffield, on behalf of the plaintiff, taken on commission, was read.

Mr. A. J. Gate, quantity and measuring surveyor, of Mecklenburgh-square, W.C., stated that the plaintiff's charges were fair and reasonable, and in no way excessive for the amount of work done. As a matter of fact, he estimated that the plaintiff was entitled to nearly £300.

Mr. Dickens (for the defendant) submitted that Mr. Duffield had no authority to employ the plaintiff, and it was apparent from the letters that he gave Mr. Duffield no authority to pledge his credit in any way. Mr. Duffield never suggested that quantities had to be got out, and from the letters of his architect the defendant was entitled to think, as he indeed did think, that the architect was really taking out the quantities in his own office. The architect never intimated that he was going to employ a quantity surveyor, and as the defendant's authority was a limited one, he contended that the defendant was not liable to the plaintiff for the amount claimed.

The defendant gave evidence, and said he never authorised Mr. Duffield to employ a quantity surveyor. Mr. Duffield never suggested to defendant that any outside assistance would have to be employed in this matter.

Cross-examined: He had never seen the bills of quantities issued to the builders, and did not hear of them. He had settled with his architect, Mr. Duffield, for a sum of £50, but he thought he might have settled the whole matter for £25; including plans, bills of quantities, and all.

Evidence was given that it was common, though not usual, for these quantities to be prepared by the architect.

Giving judgment, his Lordship said he came to the conclusion that it was never brought to-

the mind of the defendant that a quantity surveyor was to be employed, nor was he told that a quantity surveyor would have to be employed. His Lordship held that the implied authority of an architect to order a quantity surveyor to take out quantities was a matter limited by his employment, and there was no general authority to employ a quantity surveyor to be implied, having regard to the evidence of the defendant's witnesses and letters exchanged. Many architects took out quantities for themselves. There was no rule of law or general implication that if one engaged an architect one engaged a quantity surveyor as well. The letters of the defendant expressly limited Mr. Duffield's authority. He had no authority to order a quantity surveyor to do this work. On the construction of the defendant's letters Mr. Duffield had expressed direction not to do anything equivalent to engaging a quantity surveyor, and he did it without authority, and plaintiff had no right to sue the defendant. He held that the defendant was entitled to succeed and to judgment, with costs. In case the matter should go to the Court of Appeal, and they should hold his Lordship was wrong, then he said that if the plaintiff was entitled to anything he was entitled to £164 2s. and £14 15s. disbursements, a total of £178 17s.

A stay of execution with a view to an appeal was granted.

OFFICIAL REFEREE'S COURT.

(Before Mr. POLLOCK.)

Action against Builder for Alleged Breach of Covenants:

Cator *v.* Willson.

MR. POLLOCK, on Tuesday, March 23, delivered judgment in this case—an action brought by Mr. John Cator, M.P., against the defendant, Mr. John Willson, a builder, carrying on business at Bexhill-on-Sea, to recover damages for alleged injury to the reversion expectant upon the determination of six leases of houses, which the defendant built at a cost of £7,500 on the Cator Estate at Beckenham.

The houses in question were built by the defendant, or his firm, trading as Messrs. Willson & Sons, on the side of a hill, the soil of which was clay, and the case for the plaintiff, the ground landlord, was that the defendant, the lessee, was under liability from time to time to deal with all fissures and cracks appearing in the structures, and to obviate all risks of subsidence. The facts sufficiently appear from the judgment.

In his judgment, Mr. Pollock said that Mr. John Cator alleged against Mr. Willson breaches of covenant, which the defendant denied. Alternatively, Mr. Willson said repairs were being done, and paid £5 into Court with a denial of liability. About half the term of the ninety years' lease granted to Mr. Willson's firm after building had still to run. The houses were built under the supervision of the Cator Estate surveyor, and, Mr. Willson stated, of good material, and let originally at £120 a year on repairing leases. In 1881 a sewer was laid down the avenue. The road ascended a tolerably steep hill. The soil was clay, and, where these houses were, lay to a depth of from 15 ft. to 20 ft. before one came to the gravel. Near the houses was a cutting made about 1864 for the railway, and this, it was said, showed that the soil might be presumed to be of a shifting nature. The houses stood perfectly well till 1882, when they began to show signs of subsidence. Because of cracks, almost all were underpinned, and two were underpinned a second time. At the present time they still showed signs of subsidence. In 1908 Mr. Willson did up the houses and tried to get tenants. One house had now been unlet twelve years, and the rest for varying periods from six years upwards. He (the Official Referee) was very much surprised at the sort of schedule of repairs Mr. Hallett, the surveyor who acted for Mr. Cator, had prepared. He had gone into every possible detail that could be required, supposing the tenancy had come to an end, though in the box he admitted the decoration should wait till the new tenant arrived. Moreover, Mr. Willson was called on to make good every crack (and one house showed a considerable amount of subsidence), though it was said that cutting out and making good would not be any use. The cracks were bound to recur. Mr. Willson was also asked, with regard to each of the houses, to remedy all defects in the foundations. But Mr. Hallett could not say what defects were in the foundations. Mr. Hallett said something was wrong at the base of the house. That did not make Mr. Willson liable to remedy the cracks and then repair the foundations. Upon the suggestion of remedying the defects in the foundations the main dispute arose. On behalf of the landlord, the case was that Mr. Willson should repair the cracks and undertake works which would prevent any further cracking. If there had been defects in the workmanship, cracks would have shown themselves before 1882. It was suggested that if the original stratum of clay, on which the foundations were laid, had moved, the obligation was upon Mr. Willson to correct the effect, and whenever that occurred take steps to prevent its recurring. He must again and again attack the mischief by underpinning, and, if necessary, go down to the gravel, even supposing it be 20 ft. below the foundations and the cost be more than the value of the present buildings. Mr. Hallett admitted the sewer might have had something to do with the cracks. He (the Official Referee) thought it had. The sewer had probably formed a conduit, into which the subsoil water flowed, between the clay and the outside surface of the pipes, and when the subsoil water was drained from the gravel the gravel subsided, and with the gravel down went the clay. The water in gravel formed a considerable support to that which stood upon it. Mr. Edward James Gairdner said it was quite possible that the cutting of the railway in 1864 helped that drainage to occur. Mr. Willson explained that whenever he underpinned he found the clay pappy, and that would let down the foundations and the house, more or less. In these circumstances, what was the obligation of Mr. Willson? Must he go down and underpin from the gravel right up to the original foundations of the buildings? There were two authorities material to this case:—(1) Lister and Lane, and (2) Lurcott and Wakely. A third, Wright and Wilson, was a special case about a balcony, and having a bearing in so far as it showed that where it was impossible to replace a structure in the position in which it was before the damage was done, the obligation upon the tenant was not to provide something new, but only to do the best he could just to replace the thing.

In Lister and Lane the foundation of a house of some antiquity was a timber platform resting on boggy or muddy soil, and a bulging wall was caused by the rotting of the timber. Lord Esher, in that case, said the Acts seemed to him to show that if the tenant took a house which was of such a kind that by its inherent nature it would in course of time fall into a particular condition, defects of that kind were not within the tenant's covenant to repair. He had to repair that thing which he took. He was not obliged to make a new and a different thing.

Lord Justice Kay's judgment was more material to this case. He pointed out that the gravel was 17 ft. below the timber structure, and he understood underpinning to mean digging down through the mud to the solid gravel, and building-up from that to the brickwork of the house. But that would not be "repairing, upholding, or maintaining" the house in the terms of the tenant's covenant. It would be making a new and different house. It would be as costly to underpin as to rebuild.

That case was commented on in Lurcott and Wakely, where a wall tumbled down, and, relying upon the headnote of Lister and Lane, the tenant said it tumbled down from the effects of "age and want of repair." The Court replied that while it was perfectly true that a time came when one could not repair, and the only thing to do was to rebuild, if one had a repairing covenant, when the time arrived that one could no longer patch them up, then one must put in a new thing. Referring to Lister and Lane, the Master of the Rolls said:—

"It was held by the Court below, and I see no reason to quarrel with their decision, that the change of circumstance which had arisen could not have been in the contemplation of the parties, and that it would not be reasonable to construe the covenant to repair as applicable to the change of circumstances."

On these two decisions he found it was impossible to do anything to prevent this cracking, short of radical measures, the least experience of which, according to Mr. Gairdner, was to dig down to the gravel and build up to the foundations. It would cost less to rebuild. He found, as a matter of fact, that the condition of things which had arisen was not, and could not have been, within the contemplation of the parties at the time that these leases were granted. It was suggested that Messrs. Willson knew what would result from building on clay, but neither party knew, or they would have taken some steps to prevent it. Neither foresaw the effect of the sewer. To build up from the gravel, said Lord Justice Kay, would not be "repairing, upholding, or maintaining," and it would be making an entirely new and different house, with entirely different foundations from the foundations when the buildings were originally constructed, and that through no fault of the tenant, but through something for which neither party was responsible, and which neither had foreseen. In his opinion, the decision in Lister and Lane, supported by Lurcott and Wakely, showed that the only remedy which anybody suggested really could be applied to this case was one that would give such a new house that the tenant was not liable to have it enforced against him. In these circumstances there was no claim at law and no injury to the reversion. Judgment must be for the builder.

Stay of execution with a view to appeal was asked for and granted on the usual terms.

Preston *v.* Ludlow-Bruges.

THE Official Referee last week delivered judgment in this case. The facts were fully reported in our last issue.

The Referee said that the house, which was 400 years old, part of it having been built 150 years ago, was leased to the plaintiff in 1910, and the indenture provided that the structural repairs should be done by the lessor and the minor and general repairs by the lessee. Under the covenants Mrs. Ludlow-Bruges had contracted to maintain the structure, the main walls and timbers, and the roof of the mansion-house; but on her behalf it was contended that the undertaking applied only to the walls and timbers and not to the tiles and slates. When, however, Mr. Preston applied to have the repairs done, she did not suggest anything of the kind. He had no hesitation in saying that what was meant was not merely what an architect called the structure, but the structure in the ordinary sense of the word, and that the covenant meant not only the timbers of the roof, but the covering also. No one would for a moment imagine that when a covenant was entered into to repair the structure of the roof it was permissible to allow the whole of the slates to be swept away. He found as a fact that the structure of the roof was in a bad state, and the obligation to do the repairs was upon the defendant. She had pleaded that no notice had been given to her of the bad condition in which the roof was. That would have been a good point if true, as notice must be given; but it was not true, as the evidence and the correspondence showed that ample notice had been given, and there was justification for the assertion that the structure was out of repair. The conclusion at which he had arrived was that Mr. Preston was entitled to receive £70 8s., less £2 4s. 6d., the value of certain tiles which were on the premises when he entered into possession, but which were now missing. As to the counterclaim, he (the Referee) said it raised a variety of matters, all of which except one—the conversion of certain tiles—went to suggest damage to Mrs. Ludlow-Bruges's reversion. There was a claim in regard to part of a field being converted into a lawn-tennis court; but it was a little absurd to suggest that that was an injury to the reversion. So it was also with regard to the road made across a little belt of trees, as the position could easily be restored. The same remark applied to the construction of a bathroom, which was undoubtedly an improvement. He could not help thinking that a good deal of feeling had been created because Mr. Preston's views as to the property differed from those of Mrs. Ludlow-Bruges. To a certain extent the lady was to be sympathised with. She had a house 400 years old, and the old tile covering of the stables was in keeping with the ancient appearance of the property. Mr. Preston, who was a gentleman largely associated with hunting, finding the stables in a dilapidated condition, repaired them, recovering them with red tiles in place of the old ones. He could well understand that the lady did not like that, and she now made a claim for the stone tiles which had been removed. There were, according to the evidence, twenty squares of those tiles, and that they had been valued at 30s. a square. The defendant was entitled to that amount (£30) on her counterclaim.

Judgment was entered for the plaintiff for £68 3s. 6d. on the claim, with costs, and for the defendant for £30 on the counterclaim, without costs.

BUILDING SITES AND THE WAR.

It is satisfactory to learn that since the outbreak of the war there has been an unprecedented demand for the remaining sites in Kingsway, W.C., which, we are told, are practically disposed of. The inference is that a great revival of trade is anticipated on the conclusion of the present struggle, and that enterprising business men know that opportunities now open to them are not likely to recur again. We have little doubt that a good deal of similar activity is occurring in other directions, and that the astute business man listens quietly to the expression of despondency of others while he determines to do well for himself.

THE BUILDING TRADE.

ENGLISH FIR UPON THE TIMBER MARKET.

UNTIL the Government built countless wooden huts to house the new armies and Germany declared timber contraband of war few English architects had considered the possibilities of English fir as a substitute for Swedish, Russian, or Norwegian.

Although the supply is comparatively small, it is strange that the English timber merchant has been content to dispose of his product outside the recognised markets, and has never obtained a footing in London, Hull, Liverpool, or other timber centres.

For a number of years various consumers have attempted to use English soft wood for particular purposes, but although the result has been satisfactory the industry shows few signs of developing upon permanent lines, and only the abnormal conditions now prevailing have brought it to general notice.

Without going thoroughly into the subject any ordinary man would be led to say that English fir should be able to compete upon equal terms with foreign timber, and would probably assert that it would be cheaper to purchase from our own forests and transport by rail to the point of consumption than it is to buy converted deals in Sweden, transport them by sea to the east or west coast, and thence by rail to their final destination.

Many things, however, tend to render foreign wood more saleable than the English product. In the first place it is necessary to consider the conditions under which the wood has been produced and to compare them with the conditions prevailing in the vast virgin forests of the Scandinavian countries.

The traditional English passion for hunting has been responsible to a large extent for the manner in which the forests have been planted, and it will be found that the manor house and mansion have left their mark upon the timber of to-day. Many woods in England owe their existence primarily to the creation of a game preserve, and the trees have been planted and afterwards trained with this end prominently in view.

In a game preserve the fir-tree does not afford sufficient shelter for animals to collect and breed, but it does form open spaces in which they may be seen and shot. It follows, therefore, that game forests are planted of oak, beech, elm, or other leafy and spreading trees, while the fir forms breaks and avenues at various points along which the "guns" can be posted when a drive is in progress. By this method of planting the fir is constantly exposed to the stress of wind and weather, which drives down the avenues and causes the trunks to become twisted and coarse. As a protection from the severe conditions to which they are exposed these trees have a tendency to grow low branches, which are extremely detrimental to the quality of timber produced. Low branches, thick, are found, however, not only in the exposed trees of woods, but in ornamental trees in drives and avenues, and have been admired by many. There can be no doubt about their luxuriant appearance and æsthetic value; but while as ornament they are undoubtedly excellent, from the commercial point of view nothing worse could be allowed. Wherever there are thick branches the wood has large knots and disturbed or twisted fibres, so that "straight and even grain free from large, loose, or dead knots," so familiar in the architect's specification, becomes an impossibility.

Hardwoods have been cultivated in England for many years, and in some cases fir has been planted in conjunction with them, but in these cases the fir is placed upon the outside of the plantation, and is used as a weather-screen for more valuable trees, suffering, therefore, from the disadvantages enumerated above.

Compare any of these conditions with those prevailing in the great Swedish forests, and it will be seen that everything tends in one case to the production of an inferior quality, and in the other to a high grade of wood.

It is not to be understood by this that good English fir is unobtainable, but merely that in many instances it is difficult to cut trees containing timber of first-class quality. In some cases considerable sums of money have been expended upon English forests, and every effort made to improve the trees, as, for example, in the forest near Wellington College, planted by Colonel Symmonds. Here the ground is properly trenched, the trees are evenly spaced and have been carefully tended, with the result that, taking the timber over all, it is remarkably straight and even in growth, free from knots and general defects. The great drawback at the moment, however, is that high-grade English wood is not produced in large quantities, and it is practically unknown upon the market, so that a price cannot be commanded which is commensurate with its good qualities.

In all probability few are aware that in Hampshire and Berkshire the fir-tree is indigenous and, with slight preparation of the soil, will propagate itself, requiring, therefore, a minimum of labour and attention. As this is the case, it should be possible to bring timber upon the market at a price as low as, or even lower than, foreign wood.

The forester must be left to guard his trees against the ravages of the wavel, the beetle, forest fires, and other dangers, but these are matters simply of knowledge, and can be overcome if proper management, care, and skill are employed.

The sale of the forest is the next point that comes under consideration. The English landowner is notoriously no man of business, and, in the sale of his timber, too often endorses the reputation he has gained. The wood is frequently sold, not in the best market or to meet definite requirements, but as a means of raising money to meet a sudden demand upon the estate. Thus the payment of death duties, of mortgages, or even of Coronation expenses has been a prolific means of bringing standing timber upon the market. Nothing could be more detrimental to advantageous disposal. The timber has to go, not merely to the highest bidder or the highest tender, as the case may be, but to a purchaser who can pay immediate cash, and there cannot be the slightest doubt that large sums of money have been made by merchants who have bought up stocks in this manner, and by third party agents who happen to have been in touch with the landowner when he wished to sell. Furthermore, as the wood is not a source of income, but only a convenient means of raising a lump sum for a specific purpose, it often happens that both landowner and agent are satisfied if they obtain from the merchant the sum of money needed at the moment, and a few acres of wood, more or less, which this merchant may demand are cheerfully given.

It follows also that, with the funds of an estate already low and needing to be replenished in this manner, no money is available for replanting, and the land consequently lies absolutely waste and bare, shorn of its trees, unfit for arable land or pasture, useless for practical needs, and devoid of ornament. In Sweden a wise administration insists that for every tree felled one must be planted. In England whole forests may be felled, but none need be planted, and so the huge stocks which once existed in this country are being slowly but surely depleted.

Apart from the methods adopted in the growth of timber, the first thing that needs revision is the method of measurement. At the present time no recognised standard is adopted. In every part of the country something different is in force, the result being that any comparison except by the initiated few is impossible. In some cases a tender is given for the whole forest without any system of counting or measurement; in others the trees are counted, and a price given per tree; in a third the cubic contents of the tree are estimated while the tree is standing, and a price given per foot cube. In all these methods there is any amount of latitude for sharp practice. In the first two, if the agent is not particularly conversant with the disposal of timber, he may accept a price far below the real value of the wood, and in the last case it is common knowledge in the trade that underestimation will give the buyer the benefit of from 1d. to 1½d. per foot cube, a nominal 5½d. purchase price becoming 4½d. or 4d. actual measurement.

Allowances for bark also vary very largely, and make comparisons even more impossible. In some cases there is a definite percentage allowance, in others an arbitrary allowance, and so on. The absence of a recognised market, and consequently of published figures, causes landowners in one part of the country to be quite ignorant of the current value of wood in another, and this fact alone often enables the merchant who travels from county to county to purchase his stocks and make a large profit at the expense of the grower.

One of the most serious difficulties which are encountered in placing English timber upon a commercial footing is the question of labour in handling. A large amount of money has to be expended upon this account, and it is extremely difficult to see how it can be avoided.

In the case of the Swedish, Baltic, and White Sea forests, the vast quantities of wood and the continuous supply render the cost of permanent transport facilities an item of economical expenditure, and railways, slipways, or other means of conveyance which involve large capital expenditure prove their economy in a very few years. Snow and rivers form natural means of cheap and efficient movement, the value of which, from a commercial point of view, it is difficult to over-estimate.

In England many woods are of limited extent, scattered over a considerable tract of country, and as they are rarely, if ever, replanted, permanent or costly transport facilities are out of the question. The merchant is compelled to convey his wood to the nearest existing railway station and to use the facilities which he finds, making the best of very limited and inadequate accommodation.

The limited extent of the forest and the small demand render hand-felling almost the only possible means of cutting, and, in the absence of specially constructed transport, horse or traction haulage from the forest to the railway station is a necessity. Both of these methods are slow and expensive, and should the quantity of logs to be conveyed over one road happen to be at all large, the cost of road repairs will be added to an already over-expensive item.

The merchant is, furthermore, in the hands of the railway company to a much greater extent than is the importer of foreign timber. If, for instance, the facilities offered at Southampton were disliked, or the cost of transport by rail to London considered excessive, the timber can be shipped to Hull, Immingham, or any other east or south-coast port at practically the same cost, and can be transported thence by rail to London by another company at a lower rate. Competition, therefore, compels the railway companies and the dock owners to treat the foreign trader with respect, while the exact opposite is the case with the English forest and the English timber merchant. The forest is a fixture; it is served by one particular railway. The timber must be exported through that one channel, and the railway company are in a position to dictate any terms they choose. The only serious rival the railways might have had, viz., the canals, has been destroyed. The railways realised that the canals might become rivals, and in many instances bought out the rights of the former owners. The canals have consequently largely fallen into decay. Modern times, however, have seen the advent of the motor-car and the motor-boat, and who shall say that the motor barge may not bring the canals into a position of usefulness and importance they have never yet enjoyed?

The question of transport raises the question of mills, and consideration of the merits of the temporary mill and the permanent mill. Undoubtedly, when the forest is sufficiently extensive, temporary milling plant erected in the wood itself is by far the best method of conversion, as much of the handling otherwise necessary is avoided, and the transport of waste timber, off-cuts, and all unsaleable products becomes unnecessary. The handling of the log while it is uncut is comparatively heavy and difficult work, involving much manual labour and the use of hoisting tackle, slings, and other mechanical devices. Ordinary scantlings, upon the other hand, present no difficulties and can

be carried and moved with the minimum of effort and stacked in a minimum of space.

To establish a plant upon a large scale, however, it would be necessary to have extensive forests, to force the merchant to cut only well-grown trees, and to plant wherever he cuts, thus ensuring some continuity of employment for the mill.

The permanent mill means transport from the forest to the mill, and often further transport from the mill to the railway, thus greatly increasing the cost of the timber when it finally reaches the market. The only way in which a central mill could be a commercial success would be to establish it in the centre of wooded country upon a much larger and more comprehensive scale than that hitherto attempted, to place it next to a railway or a canal, and to have sidings or wharves immediately alongside. By this means a minimum of expense would be incurred in transferring the timber in logs from the point of arrival, passing it through the mill, and placing it in scantlings ready for conveyance to the point of consumption.

The great advantage of conversion upon a large scale is the facility given for sorting and grading. When the timber is collected at central depots it can be cut to suit various requirements, and a reasonable quantity of every grade of wood is produced.

At the present moment when English timber is sawn it is generally cut to execute special orders for one scantling, and the log is so converted that it will produce the maximum number of pieces of the required size. Thus a whole log may be cut into 7 in. by 2½ in. for wagon bottoms, or 1-in. boards for pit linings according to the source of the order. It is obvious that such methods do not conduce to economy. If 7-in. by 2½-in. wagon bottoms, 4-in. by 2-in. deals, 1-in. pit boards, 2-in. by 1-in. slating battens, 1-in. by 1-in. tile fillets, and 2½-in. by ½-in. packing-case slips all come out of the same log, almost every square inch in the section is utilised. If, furthermore, top ends and branches are used in the round for pit props, the maximum quantity of wood obtainable from the tree commands a price when placed upon the market, and the quantity of waste becomes negligible.

Intelligent milling is of vital importance to economic trading, and too much stress cannot be laid upon its necessity. The milling of the timber is intimately connected with its ultimate market, and this shows the need there is for organisation. For some years the purchase of English timber has practically been confined to the collieries and railway companies, and to a few poles sold to the post-office for telegraph purposes. The principal demand of the collieries is for pit wood, and to obtain this trees of all sizes are felled and cut into short lengths. The most suitable size is a log from 4-in. to 8-in. quarter girth, but as there is a very small demand for larger English wood the merchant compels the colliery to take trees up to 12-in. quarter girth to get them off his hands. Large trees, therefore, which would be of great value for building purposes, are cut into short lengths and forced upon an unwilling purchaser. Some of this timber from the butt ends of logs is remarkably free from knots, is straight grained, and even in texture—far too good, in fact, to be wasted where a very inferior article answers equally well.

The first 16 ft. to 20 ft., the butt end of a properly-grown tree, is of this grade, and is suitable for almost all carpentering purposes. Longer lengths, especially in some parts of the country, can be obtained, and here, as abroad, should fetch a proportionately higher price.

The specification of the post-office for telegraph poles is very stringent. They must be perfectly straight and true, free from branches, and of a specific size at top and butt. In finding trees which fulfil the specification for straightness, there is a feeling in the trade that too much time is spent upon an endeavour to obtain a theoretical exactness instead of a practical fulfilment of necessary conditions, and that although comparatively high prices are paid for the poles, the number of rejections and the dilatory manner in which the inspection is sometimes conducted make the transaction unprofitable. It would seem that in this particular instance much might be done to encourage the English timber industry by placing the purchase of poles upon a more practical and businesslike footing, and that with due care in planting and rearing it might be advantageous to grow trees specially for telegraph poles.

The first necessity of the English timber trade is to obtain the confidence of the public. Government patronage would go far towards achieving this end. This patronage, if given, should not be confined to special channels such as the post-office requirements just mentioned, but should extend to all classes of timber. The lack of sorting and grading and the absence of brands is a serious drawback. Until some system is introduced into this branch of the work no substantial progress can be expected. One of the greatest factors of success in the Scandinavian and Russian trades has undoubtedly been the reliance that can be placed upon any particular brand. In fact, the evenness of grade is often remarkable, and various shipments of one brand are absolutely indistinguishable.

Before the grades required for an extensive market can be properly established and maintained it will be necessary to have a much larger stock of standing timber than that at present in the country. In order to obtain this reserve a considerable tract of land must be brought under fresh cultivation every year for a period of ten or fifteen years. At the end of this time planting would proceed continuously as the trees were cut, allowing only the four years of fallow necessary to get rid of the destructive beetle which almost invariably breeds in the dead stumps.

Transport facilities and the capacity and resources of the mills need overhauling and readjustment, and in all probability Government assistance will be a necessity before either is placed upon a satisfactory basis.

Lastly, the market should be greatly extended so that all classes of timber are included. Logs should be cut to the greatest possible advantage and sold to purchasers who will pay the market value of any given grade. No industry can possibly be financially successful when all grades of material are lumped together and sold at an over-all figure. When, however, these defects have been removed there is a very definite prospect of success for a hitherto neglected industry.

CONCRETE COLUMNS AND FIRE.

IN his Report upon the Edison fire, Mr. Leonard C. Wason, President of the Aberthaw Construction Company, Boston, laid particular stress upon the desirability of making interior columns either circular or octagonal in cross-section. His argument was based upon observation of the buildings which were gutted during that conflagration. To quote:—

"Considering the intensity of the fire the effect upon the concrete was surprisingly slight. The corners of the square columns suffered most, being spalled off to an average depth of about 4 in. The shape of the final column after chipping off dead material was practically a circle owing to the loss of the corners. Neither of the two causes which combined in this spalling had to do with the dehydration of the cement in the concrete.

The material is brittle, and under heat the temperature of the corners will rise more rapidly than the mass of the column, for the heat can penetrate from two sides. The result, in general, is the same as heating a piece of brittle glass on one side, where it will expand and crack away from the unheated balance of the sheet. In all the columns square twisted rods were placed vertically—some set well back into the concrete, some very close to the corners. When the heat reached these bars they expanded and buckled and helped to make a line of cleavage in the plane in which they occurred. The combination of buckling of the steel bars and strains in the concrete probably caused the serious spalling of the columns."

In the course of his Report he also dealt with the effect of fire as influenced by internal stresses existing in reinforced concrete, as follows:—

"It is to remembered that concrete poured in large sections, after setting and during the hardening process of several months, shrinks, producing internal stresses. It is impossible to anneal the material, or to do anything to relieve these stresses in the material. The steel bars embedded in the concrete cross many of these lines of stress, and tend to hold the whole mass from cracking. If a heavy blow is struck, or if heat expansion takes place, cracks are likely to occur at the points of worst stress. Because of this, designers and insurance companies have insisted that no less care should be expended on sprinkler protection, cut-off walls, and all other means of minimising the extent and intensity of a fire in a reinforced concrete building than has been given to buildings of other types. The wisdom of this course is clearly shown in the fire under consideration, where these principles were not followed."

LEICESTER AND DISTRICT BUILDING TRADES EMPLOYERS' ASSOCIATION.

WE take the following from the annual Report:—

The membership now consists of 169 trade members and fifty-three honorary members, making a total of 222 as against 213 in 1913.

State of Trade.

The prospect of a revival of trade during last year was suddenly destroyed by the outbreak of the European War. The trade appears to be busy only in certain branches where War Office work is in hand. Evidently there is a considerable amount of unemployment in several branches of the trade. A good deal of inconvenience has been caused to builders having contracts in hand by the difficulty of obtaining supplies of goods coming from foreign sources. It is understood, however, that the worst is now over, but prices have advanced substantially in respect of timber, lead, glass, zinc, steel, iron, laths, etc.

Tenders Without Quantities Supplied.

Several cases have been brought to the knowledge of the Council that attempts have been made to obtain estimates on plans and specifications without quantities being supplied. In every case our efforts have met with success, and eventually quantities have been supplied and work done by our members. Members are particularly asked to strictly observe this and report any irregularities to the Association.

Apprentices.

It is imperative that members should give serious consideration to an increase in the number of apprentices. The supply of labour during the next few years is likely to become a serious difficulty, which can only be met by a considerable increase of apprentices in all branches of the trade.

THE ACQUISITION OF ENEMY PATENT RIGHTS.

THE following list of British patents, which have been granted in favour of residents of Germany, Austria, or Hungary, is furnished in view of the new Patents Acts, which empower the Board of Trade to confer upon British subjects the right to manufacture under enemy patents, *which right, when acquired can be retained after the war*, and is specially compiled for the *Builder* by Mr. Lewis Wm. Goold, chartered patent agent, 5, Corporation-street, Birmingham. It is desirable in the first instance to obtain the latest particulars upon the Patents Register. If any patent listed has been assigned to a non-enemy proprietor, the law does not apply:—

12,475 of 1912.—Varnishes. The oils obtained by distilling wood tar, coal tar, or lignite tar, and boiling at from 180-250 deg. C. after purification by means of soda and sulphuric acid, are mixed with a small proportion of animal or vegetable fat or oil, such as tallow, wool fat, whale oil, rape oil, linseed oil, etc., and concentrated sulphuric acid is added slowly, with cooling, so that the temperature does not rise above 50 deg. C. The mixture is kept stirred at this temperature for about an hour. The resin that settles on standing is separated, slaked lime is added, and the mixture is oxidised by ozone, ozonised air, or other means. After separation of the precipitated calcium sulphate, the oil may be used as a varnish, or mixed with colouring matter as a paint for iron, stone, wood, etc., and for ships' bottoms: O. Sprenger, Germany. Dated September 18, 1911.

12,735 of 1912.—Locks. The ordinary levers of a lock are secured by means of a tumbler adapted for operation by one of the key-bits. The tumbler also operates an auxiliary locking tumbler: W. A. D. Hipperling and A. C. F. Pfluger, Germany. Dated May 30, 1911.

12,928 of 1912.—Chimneys and flues. Two or more inclined passages passing through both the opposite walls of a chimney or ventilating shaft are provided to increase up-draught: C. Rohrer, Germany.

13,182 of 1912.—Fire-escapes. A ladder consisting of sections, hinged together, is suspended by means of links from a trolly, which runs on rails fixed at the top of a building, a rope, etc., being provided to move the

trolly. The ladder is raised and lowered by means of ropes: J. Klosin, Germany.

13,438 of 1912.—Building blocks. Interlocking building blocks for walls, foundations, and arches consist of longitudinal face walls, connected by cross walls. The blocks are formed with stepped ends, and the cross walls and the inner portions of the face walls are extended upwards to form U-section projections fitting into recesses in the lower edges of the blocks above. The blocks for walls may be used without mortar or other binding agent; in the case of foundations and arches, the blocks are filled with cement: G. Schrepfer, Germany.

13,527 of 1912.—Drying tiles, etc. Grooved or gutter tiles or other tiles or materials are dried in an apparatus comprising a preliminary channel with air circulation and a final channel with superheated steam circulation: F. Haas Ges., Germany. Dated June 14, 1911.

13,564 of 1912.—Artificial stone. In a process for making an artificial stone resembling marble, the binding medium, such as plaster or hydraulic cement, is mixed with a granular filling material, such as sand, crushed stone, firebrick, or the like, and excess of water is added. The more soluble impurities are thus separated; the water is then decanted, and the mass placed in a bag and subjected to pressure or centrifugal action to remove surplus liquid. Veins or spots of colour are produced by known means. If several colours are desired, semi-wet masses of various colours are made as before and spread with suitable powdered colours, and the lumps are then compressed in a mould: M. Hartung, Berlin.

13,683 of 1912.—Fire-escape apparatus. In fire-escape apparatus, in which a life-saving rope is unwound by the weight of the descending person from a spring drum connected to a brake or fly-gear, and is rewound automatically when the person is released therefrom; the mechanism is fitted between two side plates carried by a swinging jib, and comprises a main drum geared at one end of the spring and at the other end to the fly-gear: A Lohmann and F. Storbeck, Germany. Dated November 6, 1911.

13,745 of 1912.—Fastenings for doors. In a fastening for double doors, the oppositely moving bolts operated by a key through the medium of a rotating disc are arranged in arc-shaped guides: H. Schwarz, Germany.

13,803 of 1912.—Cements. In the manufacture of cement in rotary kilns, the materials are ground in a wet state, and are then freed from water by mechanical means, such as presses or centrifugal apparatus. The resulting product, containing about 15 per cent. of water, is fed into the kilns in the form of a loose powder: K. von Ritter-Zahony, Austria.

14,097 of 1912.—Window and like fastenings: "Hermes" Schlossvertriebsges, Berlin. Dated July 13, 1911.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

AMERSHAM.—Plans passed by R.D.C.:—Additions to motor works, Chalfont, for Mr. T. Smith; additions to Mead Cottage, Chalfont, Mr. E. Morris; additions to cottages, Swan Bottom, Mr. W. Saunders; bungalow, King's-road, Chalfont St. Giles, Mr. H. Tripp; house, Lexham-gardens, Mr. A. Saunders; two cottages, Orchard-grove, Chalfont St. Peter, Mr. W. Wise.

Baildon.—Plans passed:—Woolcombers', Ltd., new press-house at Charlestown Mills; Messrs. Geo. Whitehead & E. Peel, two houses at Lucy Hall-drive; Trustees of the late Mr. John Ambler, drainage at farm buildings, West-lane. Plans are also before the Council for a detached house at Bank Crest for Mr. N. Snowden and four houses at Bank Crest for Mr. A. Smith.

Barking.—An application is to be made to the L.G.B. by the U.D.C. for sanction to borrow £1,800 for electricity works extensions.

Barnet.—The Middlesex E.C. are issuing notices of their intention to erect a public elementary school to accommodate 300 children.

Biddenden.—Plans have been approved by the Board of Education of additional cloakroom accommodation and improvements to heating apparatus at the Church of England school.

Bispham.—Plans passed by U.D.C.:—Three houses and shop, Holmecliffe-road, for Mrs. Salisbury.

Broadstairs. — Plans passed:—Two houses, Westcliff-road, for Mr. J. T. May; two houses, Pierremont-avenue, for Mr. H. Ord; additions to house adjoining "Homesdale," King Edward-avenue, for Mr. H. Ord.

Bungay.—Plans passed for a house for Mr. Searle.

Chadwell Heath.—The Board of Education have approved of the plans of the Essex E.C. for the enlargement of the Whalebone School, estimated to cost £4,553.

Coventry. — Plans passed:—New premises, Trafalgar-street, for the Reliance Foundry Company, Ltd.; tank and structure, Parkside, for the Siddeley-Deasy Motor Company, Ltd.; covered yards, rear of the "Butcher's Arms," New-buildings, for Mr. H. E. Thornley; eight houses, David-road, for Mr. J. Gardner; boiler-house, Parkside, for the Siddeley-Deasy Motor Company, Ltd.; ten houses and one stable, Welland-road, for Mr. B. Gilbert; workshop, Spon-street, for Rudge-Whitworth, Ltd.; one house, Burlington-road, for Mr. J. P. Jorgenson; three houses, Queen Mary's-road, for Mr. J. Clifton; cupola house and stage, Edgwick Works, for Alfred Herbert, Ltd.; mission hall, Stratford-street, Upper Stoke, for the Committee of Stoke Parish Church; twelve houses, Queen Mary's-road, for Mr. T. Carvell; five houses and one house and shop and stable, Clay-lane, for Messrs. Youell & Brooks.

Dudley.—The work of preparing the site of the new Eye Infirmary and out-patient department of the Guest Hospital has been started. The contract for the building amounts to £4,050.

Durham.—The R.D.C. have approved a plan of a portion of the new hospital to be erected at Crossgate Moor by the Durham Guardians.

East Flegg.—The R.D.C. have passed plans for two cottages at Burgh for Mr. Long.

Edmonton.—In connection with the negotiations of the Middlesex C.C. with Messrs. Watney, Coombe, Reid, & Co., Ltd., brewers, as to the carrying out of alterations at the Angel Tavern, Fore-street, it is reported that Messrs. Watney & Co. propose to pull down the adjoining cottages, to develop the whole frontage on modern lines, and to erect eight shops with basements and rooms over, in accordance with plans and specification which they have submitted.

Evesham.—The L.G.B. have approved of the proposal of the Joint Hospital Board to enlarge the administrative block at a cost of £1,000.

Glasgow.—Linings granted by the Dean of Guild Court:—Govan School Board, to add to Copland-road Public School; Messrs. John Tullis & Son, Ltd., St. Ann's Leather Works, to add to and alter their property in John-street, Bridgeton; Clyde Navigation Trustees, a goods shed on the west side of Kingston Dock at Springfield-lane; Messrs. Penman & Co., Ltd., boilermakers, an engine-house and water-cooler in Strathclyde-street; Messrs. Brownlie & Murray, Ltd., Possil Ironworks, to take down buildings and erect new buildings and gantry in steel and iron in Denmark-street, Possilpark; North British Locomotive Company, Ltd., to erect an iron foundry in Edgefauld-road, Springburn; the Vestry of All Saints' Episcopal Church, occupiers, a hall and rooms at the corner of Dane's-drive and Lennox-avenue, Scotstoun; Messrs. Barr & Stroud, Ltd., engineers, a chimney-stalk and alter buildings at Caxton-street, Anniesland; Springfield Steel Company, Ltd., buildings at 777, London-road; Scottish Legal Life Assurance Society, to alter and add to buildings at the corner of Wilson and Virginia streets; Glasgow Corporation (Tramways Department), a tramway shelter at Shawlands Cross; Messrs. William Beardmore & Co., Ltd., Parkhead Forge, to add to their works in Rigby-street; Glasgow Corporation, to take down buildings and erect a four-story tenement of dwelling-houses in College-lane and College-street. Mr. Alex. Elder has left £100,000 to found, build, and endow a hospital for the poor of Govan, at or near Elder Park, Govan, and £5,000 to the Glasgow Western Infirmary for a new wing to be called the "The Alexander Elder Wing."

Hadley.—The Joint Hospital Committee for the Urban Districts of Newport, Oakengates, Dawley, and Wellington, and the Rural Districts of Newport, Shifnal, and Wellington, have agreed to the purchase of five acres of land at Hadley for £750 as the site for the new hospital.

High Wycombe.—Plans passed by R.D.C.:—House at Hazlemere for Mrs. H. Flint; alterations at Stokenchurch for Dr. Stolterforth; pair of houses at Hughenden for Mr. J. T. Harris.

Hornsey.—Plans passed by T.C.:—Alterations and additions to No. 19, Haringey-park, Crouch End, by Mr. Harold Baily; additions to garage and dwelling-house in Stormont-road, Highgate, by Messrs. E. H. Slatford & Sons; additions at the rear of shop, No. 16, Victoria-parade, Muswell Hill, by Messrs. Edmondsons, Ltd.; parish hall and classrooms in Burgoyne-road, South Harringay, by Mr. J. S. Alder, of Arundel-street, Strand; detached dwelling-house in Lanchester-road, Highgate, by Mr. Charles Tucker, of Fortis Green.

Houghton.—Plans passed by R.D.C.:—Two houses at Margate-street, Silksworth, and alterations to a lodge at Grindon Close, Silksworth, for Mr. R. Doxford, jun.

Hounslow.—The Middlesex C.C. has approved of the plans of new bridges in the Great West Road, showing (1) a new bridge at Osterley Park over the Hounslow and Metropolitan Railway, and (2) a widening of the bridge in Syon-lane over the London and South-Western Railway.

Keighley.—Plans passed by T.C.:—Mr. Hartley Hogarth, six houses, Fell-lane; Mr. Abram Grace, shop and bakehouse, Arctic-street; Messrs. George Wilkinson & Sons, transformer-house, Bradford-road. Plans passed by R.D.C.:—Addition to Ling Crag, Riddlesden, for Mr. J. Crabtree, and of two houses at Morton Banks for Mr. Tom Moore.

Kinlochleven.—It was stated at the meeting of the British Aluminium Company, Ltd., that arrangements are in progress for considerable additions to Kinlochleven Village, which it is hoped to carry through in the course of the present year.

Kingston-on-Thames.—Plans for a dispensary in Bittons-lane submitted by the County Medical Officer have been passed.

Leicester.—A L.G.B. inquiry has been held into an application of the T.C. for sanction to borrow sums of £1,994 and £3,817 for street improvements and sewerage in Lutterworth-road and Welford-road.

Leyton.—Inquiry has been made by the L.G.B regarding the application of the U.D.C. for sanction to borrow £460 for the purchase of land for the widening of Church-road, Leyton, and £1,650 for the construction of underground public sanitary conveniences at the junction of Church-road and Lea Bridge-road.

Liverpool.—The Mersey Dock Board have passed as an urgency measure the £20,000 scheme for storage improvements to relieve congestion at the docks.

Margam. — A L.G.B. inquiry has been held into the application of the R.D.C. for sanction to borrow the sums of £9,703 and £5,254 for the erection of houses at Bryn and Taibach respectively.

Newbury.—Plans passed for house in Andover-road for Messrs. Hoskings Bros.

Pinner.—The Middlesex C.C. have received the assent of the L.G.B. to their borrowing £775 for the purchase of a site for a new elementary school.

Sculcoates. — The R.D.C. have passed plans submitted on behalf of Sir James Reckitt, Bart. (two houses), and Mr. Frank Finch (houses).

Selby.—Plans approved for twelve houses for the Yorkshire Dyeware and Chemical Company in Carlton-road, near their works, and six houses in Volta-street for Messrs. J. H. Carr & Son.

Shrewsbury.—Messrs. Alley & M'Lellan, Ltd., of Glasgow, have taken ground in the vicinity of Shrewsbury for the erection of motor works. The factory will begin with from 250 to 300 artisans, and it is expected will ultimately have 1,000 employees.

Spalding.—An inquiry into an application of the U.D.C. to borrow £1,515 for the purchase of land as a site for working-class houses has been held by the L.G.B. It was stated that the scheme provided for the erection of thirty houses, and the total cost, including all charges, was put at £6,567, and the houses it was proposed to let at 5s. a week.

Steeple.—The constructor for the alterations to the Council school having asked for an increase of 25 per cent., the Essex E.C. have decided that unless he agrees to carry out the work at his tender, fresh tenders will be invited.

Stone.—A L.G.B. inquiry has been held relative to the application of the U.D.C. for sanction to borrow £3,764 for the purpose of carrying out a scheme of alterations and additions at the Waterworks Pumping Station.

Swansea.—A L.G.B. inquiry has been held into the application of the R.D.C. to borrow £9,200 for the purposes of road widening and improvement between Gorseinon and Pontardulais.

Tonbridge.—The Kent E.C. have decided to install a heating system in the Borden-road Council School at an estimated cost of £250.

Whitby.—Plans passed by Mr. J. Wilson for two cottages at Egton Bridge, for Mr. J. Kenneth Foster, J.P.

Wistanswick.—It was reported at the meeting of the Shropshire Congregational Union that £1,000 had been received for the erection of a new church.

Worcester.—A L.G.B. inquiry has been held into the application of the T.C. to borrow £9,875 and £360 for the purposes of water supply.

Ystradgynlais.—The U.D.C. have decided to proceed with the erection of twenty houses at Abercrave.

GENERAL BUILDING NEWS.

CHURCH, BLACKMILL.

A new church has been erected at Blackmill, and is known as All Saints'. The building which has accommodation for about 300 worshippers, is built in half-timbered style from a design by Mr. Morris Williams, M.S.A., Blackmill. The contractor for the work was Mr. W. J. Cearns, of London.

ALTERATIONS TO "HOLYPORT," MAIDENHEAD.

Extensive alterations and additions are being carried out at "Holyport," Maidenhead. The contractors are Messrs. Wm. F. Blay, Ltd., Railway House, Dowgate-hill, E.C., and at Dartford, Kent.

TRADE NEWS.

Boyle's latest patent "air-pump" ventilators have been applied to Queen-street Schools, Abertillery, Mon.

Messrs. C. Jennings & Co., 927, Pennywell-road, Bristol, inform us that they have two or three special sizes of doors suitable for cottages which they are prepared to sell at lower prices than can be manufactured from timber at the present moment. This may be interesting to those who intend to build cottages. They also send samples of their Neponset wall and compo-rubber roofing and ceiling board, which may interest builders and others for lining the interior of roofs of all kinds now timber is so expensive.

Messrs. Heffer & Co.'s premises having been acquired by Messrs. Bourne & Hollingsworth,

* See also our list of Competitions, Contracts, etc., on page 323.

the firm have moved to extensive new premises in 66, Berners-street, which have been tastefully redecorated and fitted up as showrooms. The range of wall coverings and papers in stock is very extensive and excellent, and the new showrooms are well adapted for the display of different types of decoration. We were especially struck with the admirable collection of coloured borders, which can be used with so much effect in simple decorative schemes, and we can recommend anyone thinking of decorating a house to inspect the firm's stock.

We are informed that the (U.K.) Winget Concrete Machine Company, Ltd., in order to facilitate business, have shortened their title to Winget, Ltd. They have also taken new and more central and commodious offices in London at 25, Victoria-street, Westminster. Their head office is 13, Star-buildings, Newcastle-upon-Tyne.

The Military Hospital, Northampton, is being supplied with Shorland warm-air ventilating patent Manchester stoves by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

THE INSTITUTE OF BUILDERS.

THE thirty-first annual general meeting of the Institute of Builders was held at Koh-i-Noor House, Kingsway, London, W.C., on the 24th ult. The audited accounts for the year ending December 31, 1914, and the Council's Report for the past year were adopted, and the following elections for the coming year were made:—

President.—Mr. Edward J. Strange (Tunbridge Wells).

Vice-President.—Mr. Edmond J. Hill (Messrs. Higgs & Hill, Ltd., London).

Treasurer.—Sir Herbert H. Bartlett, Bart. (Messrs. Perry & Co., Ltd., London).

On the Executive Council.—Mr. Ralph J. Holliday (Messrs. Holliday & Greenwood, Ltd., London), Mr. F. M. May (Messrs. Holland & Hannen and Cubitts, Ltd., London), Mr. G. H. Parker (Messrs. G. Parker & Sons, London), Mr. S. Smethurst, J.P. (Messrs. S. & J. Smethurst, Ltd., Oldham), and Mr. W. Thomas (Messrs. W. Thomas & Co., Cardiff).

Hon. Auditor.—Mr. E. Mansfield Sharman (Messrs. Smith & Co., London).

INCORPORATED INSTITUTE OF BRITISH DECORATORS.

In reference to the report of a meeting of the Incorporated Institute of British Decorators held on the 9th ult., which appeared in our issue of March 19, it should have been stated that the chair was occupied by Mr. Cowtan Cowtan, one of the Vice-Presidents of the Institute, and not by Mr. Deputy Ellis, whose name was printed in error.

THE ELECTRICAL EQUIPMENT OF A COUNTRY HOUSE.

In reference to the abstract of a paper given in our last issue, p. 288, on "The Electrical Equipment of a Country House," recently read before the Junior Institution of Engineers by Mr. Frederic H. Taylor, in two places the hyphen mark is given instead of a decimal point. We refer particularly to the first column, p. 288, third paragraph, where the sizes of engine sets should have been given as 1·2 to 12 kw., and also in the second column, paragraph 1, where the consumption should be 1·6 pints per kw. hour.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

——	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	9	—	9½	9½	—	9	8	6½	6½	6½
Accrington	10	9½	9½	9½	9	9	9½	6½	6½	6½
Altrincham	9½	10	10½	10	8½	10	9	6½	6½	6½
Ashton-under-Lyne	10½	10½	10	10½	9	10	9	6	6	7
Barnsley	9½	9½	9½	9½	9	9	8½	7	7	7
Barrow-in-Furness	9½	10	9½	9½	9½	9½	9½	7	7	7
Barry	9½	9½	9½	10	—	9	8½	6½	6½	6½
Bath	8½	8½	8½	8	7½	8	7½	5½	5½	5½
Bedford	8	8	8	8½	8	9	6½	5	5	5½
Birkenhead	11	11	11	11½	11	11	9½	7	7	7
Birmingham	11	11	11	10½	9½	10½	9½	8	8	8
Bishop Auckland	9	9	9	9	10	9	7½	6	6	6½
Blackburn	10	10½	10	9½	9½	10	9½	6½	7	7
Blackpool	10½	9½	9½	9½	8½	9	8½	6	6	6
Bolton	10	10½	10	10½	10	10	9½	6–7	6–7	6–7
Bournemouth	8½	8½	8½	8½	8½	8½	8	6	6	6
Bradford	10	10	9	9½	9½	10	8½	7	7	7
Bridgwater	6½	6½	6½	6½	6½	6½	6	4	4	4
Brighton	9	8½	8½	8½	—	8	7	6	6	6
Bristol	10½	10½	10½	10½	—	10½	9½	7½	7½	7½
Burnley	10	9½	9½	9½	8	9	9½	7	7	7
Burton-on-Trent	9	9	9	9	8½	9	8½	6½	6½	6½
Bury	10½	10½	10	9	9½	10	9	6	6	6
Cambridge	9½	9	9	9½	9½	9½	7½	6	6	6
Canterbury	8½	8	8	10	—	8½–9	6½	5	5	5
Cardiff	9½	9½	9½	9½	9½	9½	8½	7	7	7
Chatham	8	9	9	9	9	9	7	6	6	6
Chelmsford	8	7½	8½	9	—	7½	6½	5	5	6½
Cheltenham	8½	8½	8½	8½	—	8½	8	6	6	6
Chester	9½	10	9½	9½	9½	9½	8½	5½	6½–6½	5–5½
Chesterfield	9	9	9	8	9	8½	8½	5½	5½	5½
Colchester	8	8½	8½	9	8	9	6	5½	5½	5½
Coventry	10½	10½	10½	10½	9½	10½	8½	7½	7½	7½
Crewe	7	8	7½	9	8	8	7½	5	5½	6
Darlington	9½	9½	9½	10	10	9	8½	6½	6½	6½
Derby	9½	9½	9	9	9	9	8	6½	6½	7
Doncaster	9½	9½	9	9	9	9	8	6½	6½	7
Dudley	8½	8½	8½	8½	8½	8	7½	5½	5½	5½
Durham	9	9	9½	9	10	9	8½	6	6	6½
East Glamorgan and Monmouthshire Valleys	9½	9½	9½	9½	—	—	8½	6½	6½	6½
Exeter	8	8½	8	8½	7½	7½	7	5½	5½	5½
Folkestone	8½	8½	8½	9	8½	8½	7–7½	6½	6½	6½
Gloucester	8	8½	8½	8	8	8½	8	6	6	6
Grantham	8	8	7½	7½–8	7½–8	7	6½	5	5	5
Grays	—	10	10	—	—	9½	8½	7	7	7
Grimsby	9	9	9	9	9	8	8½	7	7	7
Great Yarmouth	8	8	8	—	8	8	6½	5	5	—
Halifax	10	10	9	8½	8½	9	8½	7	6½	7
Harrogate	9½	9½	9	9	8	9	8½	6½	6½	6½
Hartlepools	9	10	9½	10	10	10	9	7	7	7½
Hastings	8½	8	8	8½	8	8	7	6½	5½	6½
Hereford	8	8	7½	8½	8	7	6½	5½	5½	5½
Huddersfield	10	9½	9½	9½	10	9	8½	7	7	7
Hull	10½	10	10	10	10	10	8½	7½	7½	7½
Ipswich	8½	8½	8½	9	9	8½	7	5½	5½	5½
Lancaster	10	10	9	9	9	9	9	5½	6	6
Leamington Spa	9	9	9	8½	9	9	8	6	6	6
Leeds	10	10	10	10	9	10	8	7½	7½	7½
Leicester	9½	9½	10	10½	9½	9½	9	7	7	7½
Lincoln	9	8½	8½	9	8	8½	8	6	5½	6
Liverpool	11	11	11	11	10½	11	9½	7	7	7
Llanelly	9½	9½	9½	8½	9	8½	8	5½	5½	5½
London	11½	11½	11½	11½	—	1s.	9	7½	8	8
Loughborough	9	8½	8½	9	9	8½	7½	5½	5½	5½
Luton	9½	8½	8½	8½	9	8½	7½	5½	5½	5½
Maidstone	9	9	9	9	9	9	8	6	6	6
Manchester	10	10½	10½	11	10	10	9½	6½	6½	7½
Mansfield	8½	9	8½	8½	—	8½	8	6	6	—
Merthyr Tydfil	9½	9½	9½	9½	8½	9	8	6½	6½	6½
Middlesbrough	9	10	9½	10	10	10	8½	7	7	7½
Newcastle-on-Tyne	10½	10½	10½	10½	10	10	9	7½	7½	7½
Newport, Mon.	9½	9½	9½	9½	8½	9½	8½	6½	6½	6½
Northampton	9	9	9	9	8½	9	8	6	6	6
Norwich	8	8½	8½	8½	8	8½	7	5½	5½	5½
Nottingham	10	10	10	10½	9½	10	9	7½	7½	8
Oldham	10½	10½	10½	10	9	10	9½	7	7	7½
Oxford	9½	9	9	9	8	9	8	6½	6½	6½
Plymouth	9	9	9	9	9	9	7½	6	6	6
Pontypridd	9½	9	9	9½	9	9	8	6½	6½	6½
Portsmouth	9½	9½	9½	9½	—	8½	7½	7	7	7
Preston	10½	10½	10	9½	9½	10	9½	5½	6	6½
Reading	8½	9	9	9½	—	9	7½	6	6	6
Rochdale	10	10½	10	10	8½	9½	9	7	6	7½
Rochester	8	9	9	9	9	8½	7	6	6	6
Rugby	9½	9½	9½	9½	8	9½	8½	6	6	6
St. Albans	9	9	9	9–10	9	9–10	8	6½	6	6½
St. Helens	9	9½	10	9½	9½	9½	9½	6	6	6
Scarborough	8½	9	8½	8½	8	9	8	6½	6½	6½
Sheffield	10½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Shrewsbury	8½	8½	8½	9½	—	8½	7	5½	5½	5½
Southampton	8½	9½	9½	8½	—	9½	8½	6½	6½	6½
Southend-on-Sea	9	9	9	9	P'cework	9	7	6	6	6
Southport	10	10	9½	9½	9½	9½	9½	6½	6½	6½
South Shields	10½	10½	10½	10½	10	8½	9	7½	7½	7½
Stockport	10½	10	10	10½	9	10	8½	6	6½–7	7½
Stockton-on-Tees	9	10	9½	10	10	10	9	7	7	7½
Stoke-on-Trent	9	9½	9	9	—	8½	8½	6	6	—
Stroud	7½	7½	7½	7½	7½	7½	7	5	5	5
Sunderland	10	10½	10	10	10	9	9	6½	6½	7
Swansea	9½	9½	9½	9½	8½	9	9	6½	6½	6½
Taunton	7	7	7	7	—	6	6½	4½	4½	4½
Torquay	8	8	8	8	8	8	8	6	6	6
Wakefield	9½	9½	9	9½	8½	9	8	7	7	7
Walsall	9½	9	9	9	8½	9	8	6½	6½	6½
Warrington	8½	9½	9½	10	8½	9½	8½	5½–6	6	6–6½
West Bromwich	10	10	9½	9½	—	9	8	7	7	7
Wigan	10	10½	9½	9½	9	9½	9½	7	7	7
Windsor	9	9	9	10	—	9	—	6	6	6
Wolverhampton	9½	9½	9½	10	8	10	8	6½	6½	6½
Worcester	8½	9	9	9	8½	9	7½	6	6	6
York	9½	9½	9	9½	9½	8½	8½	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

List of Competitions, Contracts, etc.

For some contracts still open, but not included in this List, see previous issues. **Those with an asterisk (*) are advertised in this number:** Competitions, — Contracts, iv., vi., viii., x.; Public Appointments, xviii.; Auction Sales, xx. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to assure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

APRIL 21.—**Whitehaven.**—HOUSING SCHEME.—The Corporation invite designs for laying-out of the Coach-road site and erection of houses thereon. The author of the design placed first may be employed as architect, or, if not, will receive a premium of 30 guineas; author of second design will receive 20 guineas, and of the third, 10 guineas. Particulars of the Borough Surveyor, Town Hall, Whitehaven. Deposit, £2 2s.

NO DATE. — **Cheshire.** — COTTAGES. — Messrs. Lever Bros. invite designs for cottages on the Bromborough Estate. Nine premiums are offered. See advertisement in issue of March 19.

NO DATE.—**Stepney.**—MUNICIPAL BUILDINGS.—The Stepney B.C. invite designs for the proposed municipal buildings. Conditions may be obtained from Mr. G. W. Clarke, Town Clerk, Municipal Offices, 15, Gt. Alie-street, Whitechapel, E.

NO DATE. — **Whitehaven.** — HOSPITAL. — The Galemire Joint Hospital Committee invite competitive designs from architects for a small hospital proposed to be erected in their district. Particulars of Mr. E. B. Croasdell, Clerk, Union Hall, Whitehaven

Contracts.

BUILDING AND PAINTING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

APRIL 3. — **Pontefract.** — HOUSE.—Erection of residence in Carleton-road, Pontefract, for Miss Johnson. Names to Mr. W. J. Tennant, architect, Pontefract, by April 3.

APRIL 6. — **Batley.** — PAINTING.—For painting and decorating Batley Carr Wesleyan Sunday-school and the outside of the whole of the church premises. Specification of Mr. T. Knight, 31, Healds-road, Dewsbury.

APRIL 6. — **Runcorn.** — WARD.—Erection of an additional ward for the Executive Committee of the Runcorn Cottage Hospital. Particulars from Mr. Wilding, Town Hall, Runcorn.

APRIL 6.—**Smallthorne.**—INSTITUTE.—Erection of a County Mining Institute and Handicraft Centre at Ford-green, Smallthorne (near Stoke-on-Trent), for the Staffordshire E.C. Quantities of Mr. Graham Balfour, Director of Education, Stafford. Deposit, £1 1s.

APRIL 7. — **Sunderland.** — PAINTING.—Outside painting, etc., at Ryhope Asylum for the Sunderland Corporation. Specification of the Borough Surveyor, Town Hall.

APRIL 8. — **Barnsley.**—DEMOLITION.—For purchase and taking down of buildings in Church-street, etc. Specifications of Mr. J. H. Taylor, Borough Surveybr, Barnsley.

APRIL 8.—**Exeter.**—PAINTING, ETC.—For painting, papering, etc., at 9, Lower Sumnerlands, for the Exeter B.G. Specifications of Mr. R. M. Challice, architect, 7, Bedford-circus, Exeter.

APRIL 8.—**Prescot.**—VARIOUS.—(*a*) Interior and exterior cleaning and painting at various portions of the institution at Whiston; (*b*) works of drainage; (*c*) repairs to roof and alteration of building, for the Prescot B.G. Specifications, etc., of Mr. William Ellis, architect, 9, Hardshaw-street, St. Helens. Deposit, 10s. 6d.

APRIL 9. — **Conway.** — ADDITION.—Erection of small additional building at the hospital, Groesynyd, Conway, for the Conway and Penmaenmawr Joint Hospital Board. Particulars of Mr. R. Jones, Clerk, Stanley-buildings, Conway.

APRIL 9. — **Harrogate.** — HOUSE AND WALL.—Building of an extractor house and the rebuilding of a boundary wall at the Gasworks, Ripon-road, Harrogate. Quantities of Mr. Frank H. Robinson, Engineer, Gasworks, Harrogate.

APRIL 9. — **Hythe.** — HOSPITAL.—Erection of a timber-framed and corrugated-iron hospital of eight beds for the Corporation. Specifications of Mr. Chris. Jones, Borough Surveyor, Borough Surveyor's Office, Hythe.

APRIL 10. — **Blisland.** — SCREEN.—Erection for the Cornwall E.C. of a screen at Blisland Council School. Specification of Mr. B. C. Andrew, architect, Biddick's Court, St. Austell

APRIL 10.—**Steeton.**—PAINTING.—Painting and decorating of the Wesleyan Sunday-school, Steeton. Specifications of Mr. W. T. Shuttleworth, Lynwood, Skipton.

APRIL 10. — **Sunderland.** — LIFEBOAT HOUSE.—Construction of a timber-framed lifeboat house, covered with corrugated-steel sheeting, and erected on a braced timber substructure, together with a timber approach thereto, at the Sunderland station, for the Royal National Lifeboat Institution. Specification of the engineers, Messrs. Douglass, Lewis, & Douglass, 15, Victoria-street, Westminster, S.W. Deposit, £1.

APRIL 12.—**Penpontbren.**—HOUSE.—Erection of a dwelling-house at Penpontbren, near Cornel Ofan, in the parish of Llanilar, for Mr. John Phillips, Trefaes-issaf. Specifications at Lloyd's Timber Yard, Trefechan, Aberystwyth

APRIL 12. — **Street.**—PUMPING STATION, ETC.—Construction of a pumping station and works at the Old Mill, Rodney Stoke, near Cheddar, Somerset:—(1) Adaptation of existing sheds, and building new part to form engine-house; (2) erection of small water tower, 40 ft. high (alternative tenders are required for (*a*) brick built, and (*b*) steel construction); (3) supplying and fixing air-lift pumping plant, with 12 horse-power oil engine and belt-driven air compressor, pipes, valves, etc., capable of raising at least 3,000 gallons of water per hour from an existing borehole alongside the proposed new works, for the Street (Somerset) U.D.C. Specifications of Mr. W. Horace Cousins, Surveyor, Council Offices, Street, Somerset.

APRIL 13. — **Easington.**—HOUSES.—Erection of fifty workmen's dwellings, the construction of streets and sewers, and all other works connected therewith, for the Easington R.D.C. Quantities of the Architect (Mr. G. Waterhouse). Council Offices Easington, Easington Colliery, Co. Durham. Deposit, £2.

APRIL 19. — **Fishguard.** — ADDITIONS.—Additions to Tabernacle Congregational Chapel, Fishguard. Specifications at London House, Fishguard.

APRIL 19.—**Monaghan.**—BRIDGE.—Reconstruction of underline bridge near Monaghan for the Great Northern Railway Company of Ireland. Quantities of Mr. T. Morrison, Secretary, Amiens-street Terminus, Dublin. Deposit, £2 2s.

APRIL 19. — **Northampton.** — PAINTING, ETC.—Cleaning and painting (labour only) the station buildings, goods sheds, approach fences, etc., at the following stations:—Clifton Mill, Lilbourne, Rockingham, Morcott, Yelvertoft, Welford and Kilworth, Ashley and Weston, Theddingworth, Lubenham, and Seaton, for the London and North-Western Railway Company. Specifications at the Divisional Engineer's Office, Castle Station, Northampton.

* APRIL 19. — **Portsmouth.** — HOSPITAL.—The Corporation of Portsmouth invite tenders for erection of a tuberculosis hospital.

NO DATE.—**Barnsley.**—SURGERY, ETC.—Erection of surgery and other extensions at 73, Church-street, Barnsley. Applications to Mr. H. R. Collins, architect, 10, Regent-street, Barnsley.

* NO DATE.—**Chester.**—WORKMEN'S DWELLINGS.—The City Council invite tenders for erection of three blocks of workmen's dwellings.

NO DATE. — **Penarth.**—HOUSE.—Erection of a house and boundaries at Penarth for Mr. S. Hansen, Lower Westbourne-road, Penarth. Quantities of Mr. T. E. Richards, 82, Queen-street, Cardiff. Deposit, £1 1s.

FURNITURE, MATERIALS, etc.

APRIL 5.—**Foots Cray.**—MATERIALS.—Supply of road, paving, and other materials to the Foots Cray U.D.C. Forms of tender of Mr. W. A. Farnham, Surveyor, Council Offices, Sidcup.

APRIL 6. — **Northwich.** — MATERIALS, ETC.—The U.D.C. invite tenders for supplies and works for the year ending March 31, 1916. Forms of tender from the Surveyor, the Council House, Northwich

APRIL 6.—**Shildon.**—MATERIALS.—Supply to the U.D.C. of road materials, cement, bricks, sanitary pipes, etc. Mr. J. A. Wood, Clerk, Council Offices, Shildon.

APRIL 7. — **Caistor.** — TAR.—Supply of about 8,000 gallons of distilled or crude tar to the Caistor R.D.C. Mr. A. A. Padley, Clerk, Council Offices, Caistor, Lincs

APRIL 7. — **Huddersfield.** — WOOD BLOCKS.—Supply to the Corporation of 490,000 creosoted Baltic redwood blocks, size 9 in. by 3 in. by 5 in. deep. Forms of tender of Mr. K. F. Campbell, Borough Engineer and Surveyor, 1, Peel-street.

APRIL 7.—**Southampton.**—MATERIALS.—Supply of stores, etc., to the Borough Engineer's Department. Forms of tender at the Borough Engineer's Office.

APRIL 7.—**Swansea.**—TAR, ETC.—Supply to the Corporation of about 1,000 tons of tar-macadam and about 30,000 gallons of tar in accordance with the Road Board specification No. 4. Forms of tender at the office of the Borough Surveyor, 13, Somerset-place, Swansea.

APRIL 12. — **Glasgow.**—MATERIALS.—Supply to the Corporation Gas Department of materials Forms of tender of Mr. Alex. Wilson, Gas Engineer, 45, John-street, Glasgow.

APRIL 13. — **Glasgow.**—MATERIALS.—Supply to the Corporation Tramways Department of materials. Forms of tender of Mr. James Dalrymple, General Manager, 46, Bath-street, Glasgow.

APRIL 14.—**Bristol.**—MATERIALS.—Supply to the Bristol Docks of materials, including cement, timber, bricks, slates, pipes, paints, etc. Particulars of Mr. Thomas A. Peace, Engineer, Bristol.

APRIL 17. — **Benfieldside.**—ROAD MATERIALS.—Supply to the U.D.C. of slag, macadam, etc. Forms of tender of Mr. T. Knox, Surveyor, Shotley Bridge.

ENGINEERING, IRON, AND STEEL.

APRIL 5. — **Whalley.**—LATHES, ETC.—Supply to Committee of Visitors of the County Asylum, Whalley, of lathes, vices, electrical instruments, etc. Tender forms of the Clerk and Steward, County Asylum, Whalley, near Blackburn.

APRIL 6.—**Batley.**—ELECTRIC LIGHTING.—Installation of electric light at Batley Carr Wesleyan Sunday-school. Specifications of Mr. E. P. Lobley, Jesmond Dene, Birkdale, Dewsbury.

APRIL 7. — **Manchester.** — WEIGHBRIDGE. — Supply and fixing of a 20-ton weighbridge at their depôt adjoining the Gorton Town Hall, Hyde-road, Manchester, for the Corporation. Forms of tender of the Secretary, Paving, &c., Department, Town Hall, Manchester.

APRIL 8.—**Manchester.**—PIPES.—Supply to the Manchester Corporation Gas Department of about 124 tons of cast-iron pipes, 18 in. diameter. Specification of Mr. Fredk. A. Price, Superintendent, Gas Department, Town Hall, Manchester.

APRIL 10. — **Manchester.**—MATERIALS.—Supply to the Manchester Corporation Waterworks Committee of sluice valves, manhole frames, firecock boxes, etc., and lead piping. Particulars of the Secretary, Waterworks Offices, Town Hall, Manchester.

APRIL 12.—**Brighton.**—CONDENSER.—Supply to the Brighton Corporation and erection at their Southwick Power House of one surface condenser, capable of dealing with 52,500 lb. of steam per hour. Specification of Mr. Hugo Talbot, Town Clerk, Town Hall, Brighton. Deposit, £1.

APRIL 19. — **Melbourne.** — CABLES.—Supply of bare hard drawn copper cables to the City of Melbourne, Australia. Specification, etc., of Messrs. McIlwraith, McEacharn, & Co., Ppty., Ltd., Billiter-square-buildings, London, E.C. Deposit, 5s

APRIL 19. — **Melbourne.** — COPPER CABLE. — Supply to the City of Melbourne, Australia, of insulated copper cables. Specification, etc., of Messrs. McIlwraith, McEacharn, & Co., Ppty., Ltd., Billiter-square-buildings, London, E.C. Deposit, 5s

MAY 4. — **Aldershot.** — MACHINERY.—Supply to the Aldershot U.D.C. of (*a*) one 400-kw. D.C. turbine set, complete with surface condensor and circulating pumps, etc.; (*b*) one water-tube boiler with chain grate stoker; (*c*) steam and other pipework; (*d*) water-softening plant. Specification of Mr. F. Garside, Electricity Works, Laburnum-road, Aldershot. Deposit £1 1s.

MAY 5. — **Australia.** — ELECTRICAL TESTING INSTRUMENTS.—Supply of electrical testing instruments to the Victorian Railway Commissioners. Copy of specification at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

MAY 5.—**Australia.**—STEEL SPRING WASHERS.—Supply of 500,000 oiled and 500,000 not oiled steel spring washers for the Victorian Railway Commissioners. Copy of specification at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

MAY 11.—**St. Pancras.**—STEEL CONSTRUCTIONAL WORK.—For steel constructional work in connection with extension of Power House for the St. Pancras B.C. Specifications of Mr. C. H. F. Barrett, Town Clerk, Town Hall, Pancras-road, N.W. Charge, £2 2s.

MAY 19. — **Australia.** — DRILLING MACHINES.—Supply to the Victorian Railway Commissioners of four 5-ft. high-speed belt-driven radial drilling machines, including tools, gears, and accessories. Copy of specification at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

MAY 19. — **Australia.** — MOULDING MACHINE.—Supply to the Victorian Railway Commissioners of a pneumatic hand-draught moulding machine. Copy of specification at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

[Those with an asterisk (*) are advertised in this issue.]

ENGINEERING, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

NO DATE. — **Harrington.** — GASWORKS.—(1) Erection of steel-framed retort-house; (2) construction of retort bench to contain six retorts, etc.; (3) erection of lift to gasholder, for the Harrington U.D.C. Specifications at the Council Office, Harrington.

ROAD, SANITARY, AND WATER WORKS.

APRIL 5.—**Bolton-upon-Dearne.**—STREET WORKS.—Private street works in Frederick-street, Albert-road, and three back roads on building estate off High-street and Barnbrough-road, Goldthorpe, for the Bolton-upon-Dearne U.D.C. Quantities of the Surveyor, Council Offices, Bolton-upon-Dearne. Deposit, £2 2s.

APRIL 6.—**Bolton.**—FOOTPATH.—Formation and construction of footpath at the Fishpool Institution for the Bolton B.G. Specifications of Mr. John Ward, architect, 24, Mawdsley-street, Bolton.

APRIL 6. — **Rhubina.** — ROADS.—Completion of roads on first portion of the Rhubina Garden Village, near Cardiff, for the Welsh Town-Planning and Housing Trust, Ltd. Quantities of the Architect, Welsh Town-Planning and Housing Trust, Ltd., 21, Park-place, Cardiff. Deposit, £3 3s.

APRIL 6.—**Wakefield.**—SANITARY.—Remodelling of sanitary arrangements in old wards for the B.G. Quantities of Messrs. Simpson & Firth, architects, Southgate-chambers, Wakefield.

APRIL 7. — **Hornsey.**—STREET WORKS.—Making up passageway at the rear of Station-parade, Colney Hatch-lane, Muswell Hill, for the Hornsey Corporation. Particulars from Mr. E. J. Lovegrove, Borough Engineer, Town Hall, Highgate.

APRIL 7. — **Long Benton.**—DRAINS.—Construction of drains, etc., for the Long Benton Burial Board. Specifications of the Board's Surveyor, Mr. B. J. Stephenson, 55, Pilgrim-street, Newcastle.

APRIL 9. — **Hale.**—STREET WORKS.—Making up of Wyngate-road for the Hale U.D.C. Quantities of Mr. T. Blagburn, Surveyor, Council Offices, Hale. Deposit, £1 1s.

APRIL 12. — **Mynyddislwyn.** — ROADS.—Construction of Ynysddu new road for the Mynyddislwyn U.D.C., including the erection of heavy masonry retaining walls, the laying of surface-water drains and cast-iron gas main. Quantities of the Council's Engineer, Mr. E. Watkin Edwards, Council Offices, Pontllanfraith. Deposit, £3 3s.

APRIL 13. — **Malden.** — STREET WORKS. — (1) Making up and maintaining South-lane (part of): (2) for paving with artificial stone slabs the footways in South-lane (part of); (3) for constructing about 625 yds. run of 18-in. and 15-in. concrete tube, and about 82 yds. run of 9-in. stoneware pipe surface-water sewer, etc., in Green-lane and Albemarle-gardens, for the Maldens and Coombe U.D.C. Specifications and schedules of the Surveyor, Mr. R. H. Jeffes, Council Offices, New Malden. Deposit, £2 2s. for contracts 1 and 3, and £1 1s. for contract 2.

Public Appointment.

* MAY 10. — CHAIR OF CIVIC DESIGN. — The Council of the University of Liverpool invite applications for the above appointment. Salary, £400 per annum.

Auction Sales.

* APRIL 7.—**Finchley.**—Mr. H. W. Smith will sell by auction, on the premises, the stock of a general builders' merchant.

* APRIL 13.—**Chelsea.**—Mr. H. W. Smith will sell by auction leasehold waterside premises.

* APRIL 13.—**Chelsea.**—Mr. H. W. Smith will sell by auction stock and plant of a builders' merchant.

* APRIL 13. — **Gloucester.** — Messrs. Bruton Knowles, & Co. will sell by auction the stock, timber, plant, machinery, buildings, etc., of a timber merchant.

* APRIL 14. — Messrs. Churchill & Sim will sell by auction, at the Great Hall, Winchester House, Old Broad-street, E.C., an assortment of deals, battens, boards, timbers, etc.

* APRIL 15.—**Leatherhead.**—Mr. H. W. Smith will sell by auction, on the premises, the stock and plant of a builder.

[Those with an asterisk (*) are advertised in this issue.]

THE IMPROVEMENT OF THE RIVER CLYDE AND HARBOUR OF GLASGOW, 1873-1914.*

THE last paper presented to the Institution dealing with the River Clyde was that read in May, 1873, by (the late) Mr. James Deas, then Engineer of the Clyde Navigation, and the purpose of this paper is to sketch the progress of the works from that date until now. Briefly, the state of matters in 1873 was that the river from Glasgow to the sea at Port Glasgow had an average depth of 15 ft. to 18 ft. below low water and 25 ft. to 28 ft. at high water, of ordinary spring tides, while the largest vessel navigating the river had a draught of 22 ft. The total quayage of the harbour was 6,410 yds. in length, and the water area was 76 acres. The volume of goods imported and exported amounted to 2,236,925 tons. The tonnage of vessels arriving and departing was 4,392,402 tons, and the revenue amounted to £182,906.

The principal works under construction in 1873 were No. 1 Graving Dock and Queen's Dock. The graving dock was opened in 1875. Queen's Dock (Act of 1870) involved a diversion of Pointhouse-road about 1,000 yds. in length. The same Act authorised Stobcross and Plantation quays. By 1873 the first portion of the latter quay had been completed, and by 1874-5 the last portion was finished. In the first portion 12-ft. diameter brick cylinders were used for foundations. In the latter portion triple groups of concrete were adopted.

Queen's Dock has three basins with a water area of 33¾ acres and 3,334 yds. of quays. The depth below low water is 20 ft. The entrance, 100 ft. wide, is spanned by a swing bridge. At this dock a third type of triple concrete cylinder foundations was used. Here, too, hydraulic power was introduced for the first time. The north and west quays are devoted to export of coals and import of minerals; the remaining quays are allocated to general trade. The dock was utilised in sections, the first portion in 1877 and the last about 1880. The total cost was £901,662.

In 1873 No. 2 Graving Dock was authorised; also widening of the river at three places. By 1883 the quayage had increased to 10,624 yds. Notwithstanding this, powers were secured to construct Prince s Dock on the south side of the river and to bring in a railway connection. In 1890 the form of the dock was altered, and the railway was arranged to enter on low level. This work involved a diversion, about 1,560 yds. in length, of the main road between Glasgow and Renfrew, with tramways thereon, and was completed in 1892. The dock has four basins with water area of 35 acres and 3,737 yds. of quayage. The north basin has a depth of 20 ft.; the centre and south basins, 25 ft.; and the outer basin varies from 20 ft. to 28 ft. below low water. The entrance is bell-mouthed, with a minimum width of 156 ft. The west quay is allocated to general trade and to vessels fitting out, for which latter purpose a 130-ton steam crane was provided. The south quay is set apart for export of coal and import of ore. The remaining quays are used for general trade, and are provided with sheds, chiefly two-storied. The crane equipment consists of forty-seven cranes—forty-three hydraulic, three steam, and one electric. On the south quay, for coal export, there is one 25-ton steam crane and a 20-ton hydraulic hoist. The dock has railway connection *viâ* the General Terminus Railway and by the Prince's Dock Railway. The first portion of the dock was brought into use in 1892 and the last in 1897. The quays are founded on concrete cylinders similar to those at Queen's Dock. The cost of the dock and all equipment was £995,800.

No. 2 Graving Dock was opened in 1886. The dimensions and cost of Graving Docks Nos. 1, 2, and 3 are given in the following table:—

—	No. 1. 1875.	No. 2. 1886.	No. 3. 1898.
	Ft. In.	Ft. In.	Ft. In.
Length of floor inside face of caisson	551 0	575 0	880 0
Length of floor of outer division	—	—	460 0
Length of floor of inner division	—	—	420 0
Width of entrance at bottom	65 0	57 0	83 0
Width of body of dock at floor	55 5	52 4	81 8
Width of entrance at top	72 0	67 0	83 0
Width of body of dock at cope level	94 0	92 0	115 0
Depth of water on entrance sill at average high water of spring tides	22 10	22 10	23 6
Cost, excluding land	£134,867	£110,989	£240,872

In 1884 a quarantine station and cattle depôt, also timber-yards at Shieldhall, were authorised, and 380 yds. of timber wharfing were constructed.

By the Act of 1890, already mentioned, No. 3 Graving Dock was authorised alongside the existing two docks.

The Trustees, feeling the want of mineral-traffic berthage, obtained powers in 1899 to construct Rothesay Dock in the Burgh of Clydebank, 6 miles below Glasgow. The dock has an outer and inner basin, with a water area of about 20 acres, and about 2,045 yds. of quayage. For export of coal there are four 32-ton hoists and one 32-ton movable crane; for import of iron-ore, etc., there are twenty-one cranes and two transporters. All equipment is operated by electric power. Here the founding of quay-walls on concrete monoliths was first introduced. The North British and Caledonian Railway Companies each constructed branch lines up to the dock grounds. The capital expenditure on this work has been about £574,900.

Traffic still growing rapidly, the Trustees, in 1904, got power to construct 525 yds. of quay at Merklands, in the Burgh of Partick, to give 26 ft. and 38 ft. respectively, and 1,137 yds. at Yorkhill, to give 28 ft. and 40 ft. respectively, below low and high water. Behind Merklands Quay 7½ acres of ground were leased to the Glasgow Corporation for new cattle-lairage. Merklands Quay and the relative works were completed in 1907 at cost of about £73,700. At Yorkhill there was another diversion of Pointhouse-road. The quays were brought into use in 1910, and they have admirable railway connections. At both Merklands and Yorkhill the monolith system of foundation was largely used. The capital outlay at Yorkhill has been about £241,000. Under the same Act of 1904, 22 acres of land were thrown into waterway in widening the river.

In 1905 the Clyde Trustees acquired from the Royal Burgh of Renfrew their rights to form a dock for the enlargement of their small harbour. At the same time they purchased 110 acres of ground east of Renfrew, and by an arrangement with the Corporation of Glasgow to shift the site of their sewage works the Trustees became owners of the river frontage from Shieldhall to Renfrew, a distance of more than 2 miles. With a further purchase southward of Renfrew-road, they now hold 400 acres of land.

Under powers obtained in 1907, 538 yds. of quayage were constructed at Meadowside, in the Burgh of Partick. The quay was completed in 1912, and gives a depth of 28 ft. and 40 ft. respectively at low and high water. The works have cost about £129,400.

Behind the quay a granary capable of storing 31,000 tons of grain has been erected at a cost of about £120,000. The works have excellent railway connections.

Besides the cylinder and monolith systems of foundation for quay-walls, some caisson foundations were put down in Glasgow Harbour about 1902, where the strata were of a treacherous character. These caissons were eight in number, each 80 ft. long by 18 ft. wide, the first, 25 ft. in height, being built of steel, and the rest of brickwork.

To accommodate vessels of the extreme sizes now building, the Trustees got powers in 1911 to construct a graving dock and two basins on a portion of the 110 acres east of Renfrew. The basins will provide 32 acres of water and 1,650 yds. of quays, the depths at low and high water being 30 ft. and 41½ ft. respectively. The graving-dock is proposed to have a length of 1,020 ft., a depth on the sill of 36 ft., and ample width of entrance. For laying out the 400 acres of land, a scheme has been formulated consisting of five parallel basins entering off the river, with widths varying from 300 ft. to 400 ft., and 400 ft. for width of piers.

In 1914 power was obtained to divert the Renfrew-road and tramways thereon, 2,770 yds. in length and to construct the two easternmost basins, giving 41 acres of water-space and 3,345 yds. of quays. When completed, the whole scheme of five basins will afford 29 acres of water-space and 8,200 yds. of quays. The basins will have specially favourable connection with the adjoining railways.

* Abstract of a paper, by Sir Thomas Mason, A.M.Inst.C.E., read at the ordinary meeting of the Institution of Civil Engineers on the 9th ult.

The chief obstacles met with in deepening and widening the river have been hard boulder clay and rock at Elderslie, east of Renfrew. In 1873 only 8 ft. depth existed over one-half of the channel and 14 ft. over the other half. In 1880-86 a depth of 20 ft. below low water was attained, and from 1903 to 1907 28 ft. was reached. The area of ground was nearly 5½ acres, and from first to last the expenditure has been about £140,000.

The deepest-draughted vessel navigating the river in 1873 drew 22 ft.; in 1914 liners drawing 27 ft. to 29 ft. went to and from the harbour. In 1907 the Cunarder *Lusitania*, and in 1914 the *Aquitania*, passed safely to sea, drawing 29½ ft.

In 1873 there were six dredgers and fourteen steam hopper barges of 300 to 400 tons capacity, which deposited their materials in Loch Long. Now there are four powerful modern dredgers and sixteen steam hopper barges, with carrying capacities of 1,000 and 1,200 tons, which deposit at the mouth of the Firth. The original cost of the present plant was about £440,000.

Dredging for new work and maintenance has cost £1,778,000.

The site of workshops and slips at Dalmuir, for repair of dredging-plant, being required by Messrs. Beardmore & Co., the Clyde Trustee, constructed new works at Renfrew in 1908 at a cost of about £122,000.

The improvements on the river have had the effect of reducing the time of flow between Greenock and Glasgow. Low water has fallen at Glasgow about 2 ft., and is now 5 in. lower than at Greenock. In 1873 springs rose 10 ft. 6 in.; now the rise is 12 ft. 2 in.

In 1873 the river lights consisted of two lighthouses, one lightship, and three light-towers, all burning oil. Now there are twenty-six lights, all burning Pintsch's compressed gas.

The Clyde Trustees provide cross-river communication by ferries. In 1873 there were seven passenger ferries and one vehicular ferry. Now there are six for passengers and five for vehicles. Boats and constructional works have cost about £158,000.

During the last forty-one years the growth in the size of trading vessels on the Clyde has been very great, tonnage having increased by 325 per cent., length by 56 per cent., breadth by 69 per cent., and draught by 48 per cent. Quayage has increased three times; tonnage of goods handled four and a half times; and revenue, nearly three and a half times. The water area of harbour and docks which in 1873 was 76 acres, is now 535 acres.

The debt of the Trust has grown from £2,350,256 to £7,196,575; the borrowing-power from £3,700,000 to £9,700,000. Over the period under review the capital expenditure on new works and improvements has been £6,913,923.

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

Lead and timber prices have been advanced since our last issue.

. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.
Per 1000 Alongside, in River.	
Best Stocks	1 18 0
Picked Stocks for Facings	2 12 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s.
Flettons	1 14 0	Best Blue Pressed Staffordshire	3 15 0
Best Fareham Red	3 12 0	Do. Bullnose	4 0 0
Best Red Pressed Ruabon Facing	5 0 0	Best Stourbridge Fire Bricks	4 0 0
GLAZED BRICKS—			
Best White, Ivory, and Salt Glazed Stretchers	13 0 0	Double Headers	15 10 0
Headers	12 10 0	One Side and two Ends	19 10 0
Quoins, Bullnose and 4½ in. Flats	16 10 0	Two Sides and one End	20 10 0
D'ble Str'tch'rs	18 10 0	Splays and Squints	18 0 0

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	7 6	per yard, delivered.
Thames Ballast	6 0	" " "
Best Portland Cement	38 0	per ton, "
Best Ground Blue Lias Lime	21 0	" " "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	14s. 0d. per yard delivered.
Stourbridge Fireclay in sacks	27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 7½
Do. do. delivered on road waggons, Nine Elms Depôt	1 9½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 6½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Beer in blocks	1 6	Red Mansfield Freestone	2 4
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2 4
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 3		

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	2 10
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7
1½ in. to 2 in. ditto, ditto	0 6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	3 0
Per Ft. Super., Delivered at Railway Depôt.	
6 in. sawn two sides landing to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
2 in. sawn two sides slabs (random sizes)	1 2
8 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20 x 10 best blue Bangor	13 5 6	20 x 12 ditto	14 5 0
20 x 12 ditto	14 7 6	16 x 8 ditto	7 0 0
20 x 10 1st q'lity ditto	13 0 0	22 x 10 best blue Portmadoc	12 12 6
		16 x 8 ditto	6 10 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Hartshill" brand, plain sand-faced (per 1000)	45 0
Hip and Valley (per doz.)	3 7	Do. pressed (per 1000)	42 6
Best Broseley (per 1000)	50 0	Do. Ornamental (per 1000)	47 6
Do. Ornamental (per 1000)	52 6	Hip (per doz.)	4 0
Hip and Valley (per doz.)	4 0	Valley (per doz)	3 6
Best Ruabon red, brown, or brindle (Edw'ds) (pr 1000)	57 6	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental (per 1000)	60 0	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 0	Hip (per doz.)	4 0
Valley (per doz.)	3 0	Valley (per doz.)	3 6

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	21 10 0	22 0 0
Deals: best 3 in. by 9 in.	21 0 0	22 0 0
2 in. by 11 in.	23 0 0	23 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	19 0 0	20 0 0
Battens: best 2½ in. by 6 in. and 3 in. by 6 in.	0 10 0	less than 7 in. and 8 in.
2 in. by 7 in.	20 0 0	—
3 in. by 4 in.	21 0 0	—
2 in. by 4½ in.	22 10 0	—
3 in. by 4½ in.	21 10 0	—
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	" "
2 in. by 4 in. and 2 in. by 6 in.	17 10 0	19 0 0
2 in. by 4½ in. and 2 in. by 5 in.	15 0 0	16 10 0
Foreign Sawn Boards—		
1 in. and 1½ in. by 7 in.	0 10 0	more than battens.
¼ in.	1 0 0	"
Fir timber: best middling Memel (average specification)	At per load of 50 ft. 6 15 0	7 15 0
Seconds	6 0 0	6 10 0
Small timber (8 in. to 10 in.)	5 5 0	5 10 0
Small timber (6 in. to 8 in.)	4 10 0	5 0 6
Swedish balks	4 0 0	4 10 0
Pitch-pine timber (30 ft. average)	8 5 0	9 0 0

JOINERS' WOOD.	At per standard. £ s. d.	£ s. d.
White Sea: first yellow deals, 3 in. by 11 in.	33 15 0	35 0 0
Battens, 2½ in. and 3 in. by 7 in.	23 7 6	24 7 6
Second yellow deals, 3 in. by 11 in.	27 5 0	28 5 0
Do. 3 in. by 9 in.	25 5 0	26 5 0
Battens, 2½ in. and 3 in. by 7 in.	20 0 0	21 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	20 2 6	21 2 6
Battens, 2½ in. and 3 in. by 7 in.	19 0 0	20 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	29 10 0	31 0 0
Do. 3 in. by 9 in.	25 5 0	26 5 0
Battens	19 5 0	20 5 0
Second yellow deals, 3 in. by 11 in.	21 10 0	23 0 0
Do. 3 in. by 9 in.	20 5 0	21 10 0
Battens	19 0 0	20 0 0
Third yellow deals, 3 in. by 11 in. / Do. 3 in. by 9 in.	19 10 0	—
Battens	18 10 0	19 0 0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	At per standard. £ s. d.	£ s. d.
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	22 10 0	24 0 0
First white deals, 3 in. by 9 in.	21 0 0	22 10 0
Battens	18 0 0	19 0 0
Second white deals, 3 in. by 11 in.	20 0 0	21 0 0
Second white deals, 3 in. by 9 in.	19 0 0	20 0 0
Battens	17 10 0	18 10 0
Pitch-pine deals	34 0 0	35 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Columbian or Oregon Pine, best quality	28 0 0	29 0 0
Yellow Pine—First, regular sizes	57 0 0	upwards.
Oddments	39 0 0	"
Seconds, regular sizes	43 10 0	"
Oddments	37 0 0	"
Kauri Pine—Planks per ft. cube	0 6 9	0 7 6
Oak Logs—		
Large, per ft. cube	0 5 0	0 6 0
Small " "	0 4 0	0 5 0
Wainscot Oak Logs, per ft. cub	0 10 6	0 12 6
Dry Wainscot Oak, per ft. super, as inch	0 0 11	0 1 3
¼ in. do. do.	0 0 10	0 1 0
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0 0 11	0 1 4
Selected, Figury, per ft. super, as inch	0 1 6	0 2 6
Cuba Mahogany	0 1 6	0 2 6
Dry Walnut, American, per ft. super, as inch	0 0 11	upwards. 0 1 3
French, "Italian," Walnut	0 0 11	0 1 6
Teak, per load (Rangoon or Moulmein)	28 0 0	34 0 0
Do., do. (Java)	24 0 0	27 0 0
American Whitewood planks, per ft. cube	0 6 6	0 7 6
Prepared flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 18 0	1 0 0
1 in. by 7 in. yellow, planed and matched	0 18 0	1 0 0
1¼ in. by 7 in. yellow, planed and matched	1 2 0	1 5 0
1 in. by 7 in. white, planed and shot	0 17 6	1 0 0
1 in. by 7 in. white, planed and matched	0 18 0	1 0 0
1¼ in. by 7 in. white, planed and matched	1 2 0	1 5 0
¾ in. by 7 in. yellow, matched and beaded or V-jointed boards	0 14 6	0 16 6
1 in. by 7 in. " "	0 18 6	1 1 0
¾ in. by 7 in. white " "	0 14 6	0 16 6
1 in. by 7 in. " "	0 18 6	1 1 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	9 10 0	10 10 0
Compound Girders, ordinary sections	12 0 0	13 0 0
Steel Compound Stanchions	13 0 0	15 0 0
Angles, Tees, and Channels, ordinary sections	12 0 0	13 0 0
Flitch Plates	12 0 0	13 0 0
Cast Iron Columns & Stanchions, including ordinary patterns	9 0 0	10 0 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	9 10 0	10 0 0
Staffordshire Crown Bars, good merchant quality	9 15 0	10 5 0
Staffordshire "Marked Bars"	11 10 0	—
Mild Steel Bars	9 15 0	10 5 0
Hoop Iron, basis price	10 10 0	—
" " Galvanised	18 10 0	—
(And upwards, according to size and gauge.)		
Sheet Iron Black—		
Ordinary sizes to 20 g.	11 0 0	—
" " 24 g.	12 0 0	—
" " 26 g.	13 10 0	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16 0 0	—
Ordinary sizes to 22 g. and 24 g.	16 10 0	—
Ordinary sizes to 26 g.	17 10 0	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	18 10 0	—
" " 22 g. and 24 g.	19 0 0	—
Ordinary sizes to 26 g.	20 0 0	—
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	15 0 0	—
Ordinary sizes, 22 g. and 24 g.	16 0 0	—
Ordinary sizes, 26 g.	17 0 0	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	13 0 0	—
Best Soft Steel Sheets, 22 g. & 24 g.	14 0 0	—
Best Soft Steel Sheets, 26 g.	16 0 0	—
Cut Nails, 3 in. to 6 in.	13 0 0	13 10 0
(Under 3 in., usual trade extras.)		

LEAD, &c.

	Delivered in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 4 lb. and up	28 2 6	—
Pipe in coils	28 12 6	—
Soil pipe	31 12 6	—
Compo pipe	31 12 6	—
NOTE—Delivery in country in not less than 5 cwt. lots, 1s. per cwt. extra.		
ZINC—	In casks of 10 cwt.	
Sheet	65 0 0	—

LEAD, &c. (*Continued*).

Delivered in London.

		£	s.	d.		
COPPER—						
Strong Sheet	per lb.	0	1	5	..	—
Thin „	„	0	1	7	..	—
Copper nails	„	0	1	5	..	—
Copper wire	„	0	1	5	..	—
BRASS—						
Strong Sheet	„	0	1	4	..	—
Thin	„	0	1	5	..	—
TIN—English Ingots	„	0	1	10	..	—
SOLDER—Plumbers'	„	0	0	11	..	—
Tinmen's	„	0	1	2	..	—
Blowpipe	„	0	1	4	..	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	6¼d.	26 oz. fourths	6¾d.
„ fourths	5¾d.	32 oz. thirds	8¾d.
21 oz. thirds	6¾d.	„ fourths	7¾d.
„ fourths	6¼d.	Fluted Sheet, 15 oz.	5¼d.
26 oz. thirds	7¼d.	„ 21 oz.	6¼d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

¼ Rolled plate	3¼d.
⅜ Rough rolled and rough cast plate	3¾d.
½ Rough rolled and rough cast plate	4¼d.
Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	5¼d.
Ditto, tinted	6¼d.

* Not less than two crates.

OILS, &c.		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	3	0
„ „ „ in barrels	„	0	3	1
„ „ „ in drums	„	0	3	3
Boiled „ „ in barrels	„	0	3	3
„ „ „ in drums	„	0	3	5
Turpentine in barrels	„	0	3	4
„ in drums	„	0	3	7
Genuine Ground English White Lead, (In not less than 5 cwt. casks.)	per ton	32	0	0
Red Lead, Dry	per ton	30	0	0
Best Linseed Oil Putty	per cwt.	0	10	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c. Per gallon.

	£	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	9
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	6
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0

VARNISHES, &c. (*Continued*). Per gallon.

	£	s.	d.
Berlin Black	0	16	0
Knotting	0	10	6
French and Brush Polish	0	10	0

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 2 *p.m. on Wednesday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accep'ed*.

ABERGAVENNY.—For alterations and additions to Abergavenny Police Court and Station, for the Standing Joint Committee, Monmouthshire County Council. Mr. William Tanner, F.S.I., Co nty Surveyor and County Architect, Newport, Mon. Quantities by the Architect:—

C. H. Reed	£1,900 0 0	W. Watkins	£1,726 10 0
R. W. Moon	1,897 0 0	J. Williams	1,710 19 2
Gough Bros.	1,868 0 0	J. Boyt	1,545 0 0
Poulton & Whiting	1,860 0 0	W. P. Lewis & Co.	1,520 0 0
G. F. Leadbeter	1,837 0 0	Foster & Hill	1,495 0 0
J. G. Thomas & Son	1,779 0 0	Horsington Bros., Abergavanny*	1,445 0 0

ACTON.—Paving of footpath in Uxbridge-road in front of Grosvenor Court, for the Middlesex County Council:—

Patent Victoria Stone Co.	£152 12 6
G. Wimpey & Co.	149 7 0
H. Morecroft, Acton*	143 0 0

EXETER.—For improvement work at Heven-road and Water-lane, for the Corporation:—

W. R. Brealey, Exeter*	£3,236

IPSWICH.—Enlargement of the municipal secondary school for boys, for the Corporation:—

Sadler & Sons	£1,930 0	V. A. Marriott	£1,795 0
C. A. Green	1,850 0	E. Catchpole & Sons, Ltd.	1,765 0
G. A. Kenny	1,823 0	Cubitt & Gotts	1,763 11
R. Bennett & Snare, Ltd.	1,822 14	W. C. Reade, Aldeburgh*	1,679 0

LITTLE THURROCK (Essex).—For alterations and additions to the hospital, for the Orsett Joint Hospital Board. Mr. Christopher M. Shiner, architect. Quantities by Mr. G. Silvester, 7, Adam-street, Adelphi, W.C.:—

Horsman	£1,590 0 0	R. Manable	£1,480 0 0
Carter, Ltd.	1,540 0 0	F. Stark	1,406 0 0
Walsham	1,530 2 9	G. Brown*	1,387 12 6
Brown Bros.	1,534 7 0		

LITTLE THURROCK (Essex).—For a new military pavilion for the hospital, for the Orsett Joint Hospital Board:—

Harrison	£2,080	Horson & Co.	£1,650
Glains	1,898	Brown Bros.	1,592
Carter, Ltd.	1,777	Walsham	1,580
H. Clark	1,688	G. Brown*	1,475

PETERSFIELD.—For carrying out of drainage scheme at Liss, for the Petersfield Rural District Council:—

P. Trentham & Co.*	£7,740

SHOEBURYNESS.—Enlargement of Richmond-avenue School, for the Essex Education Committee:—

W. S. Sharpin, Bow*	£4,740

THUNDERSLEY.—Erection of school for 200 children, for the Essex Education Committee:—

M. Fisher & Co., Rayleigh*	£2,954 2

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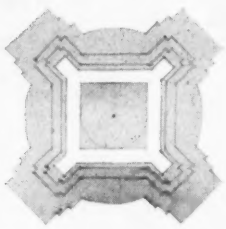
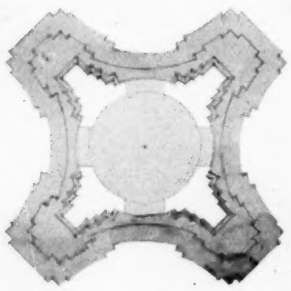
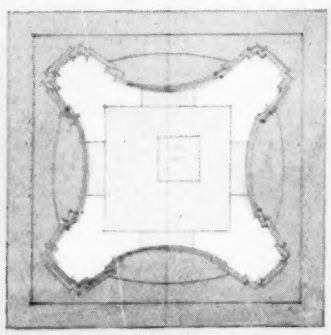
THE TOWER & ELEVATION.



PLAN AT A.

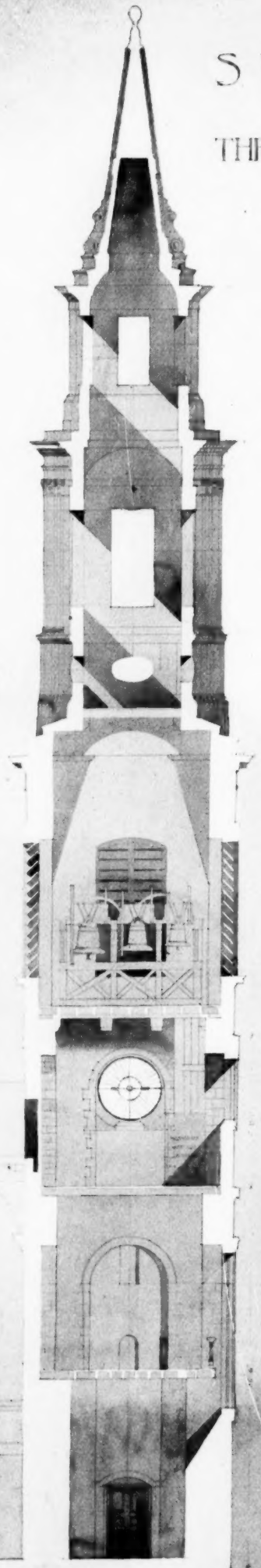


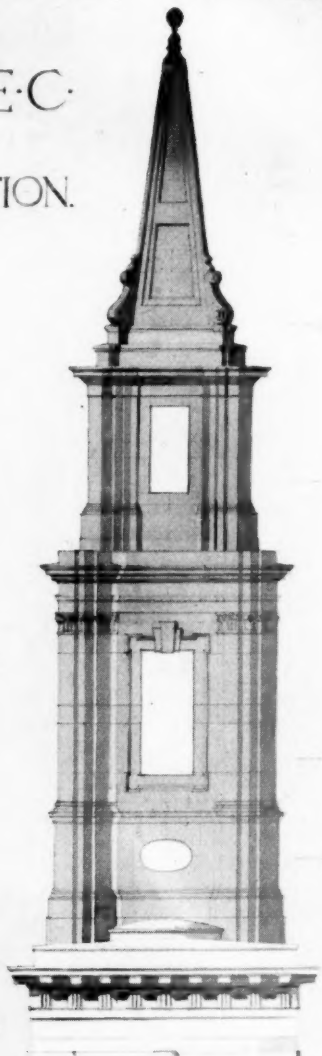
PLAN AT B

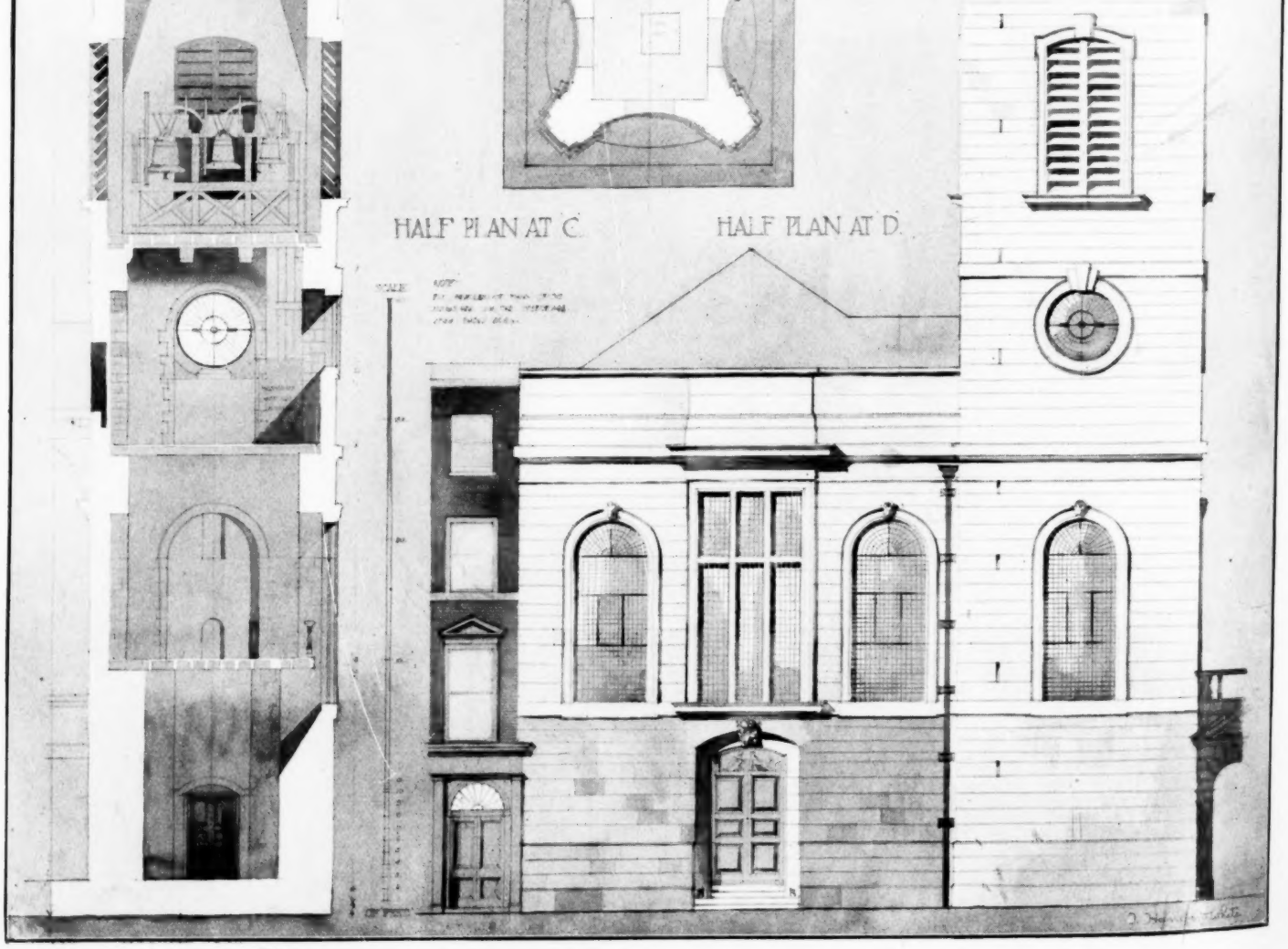


HALF PLAN AT C.

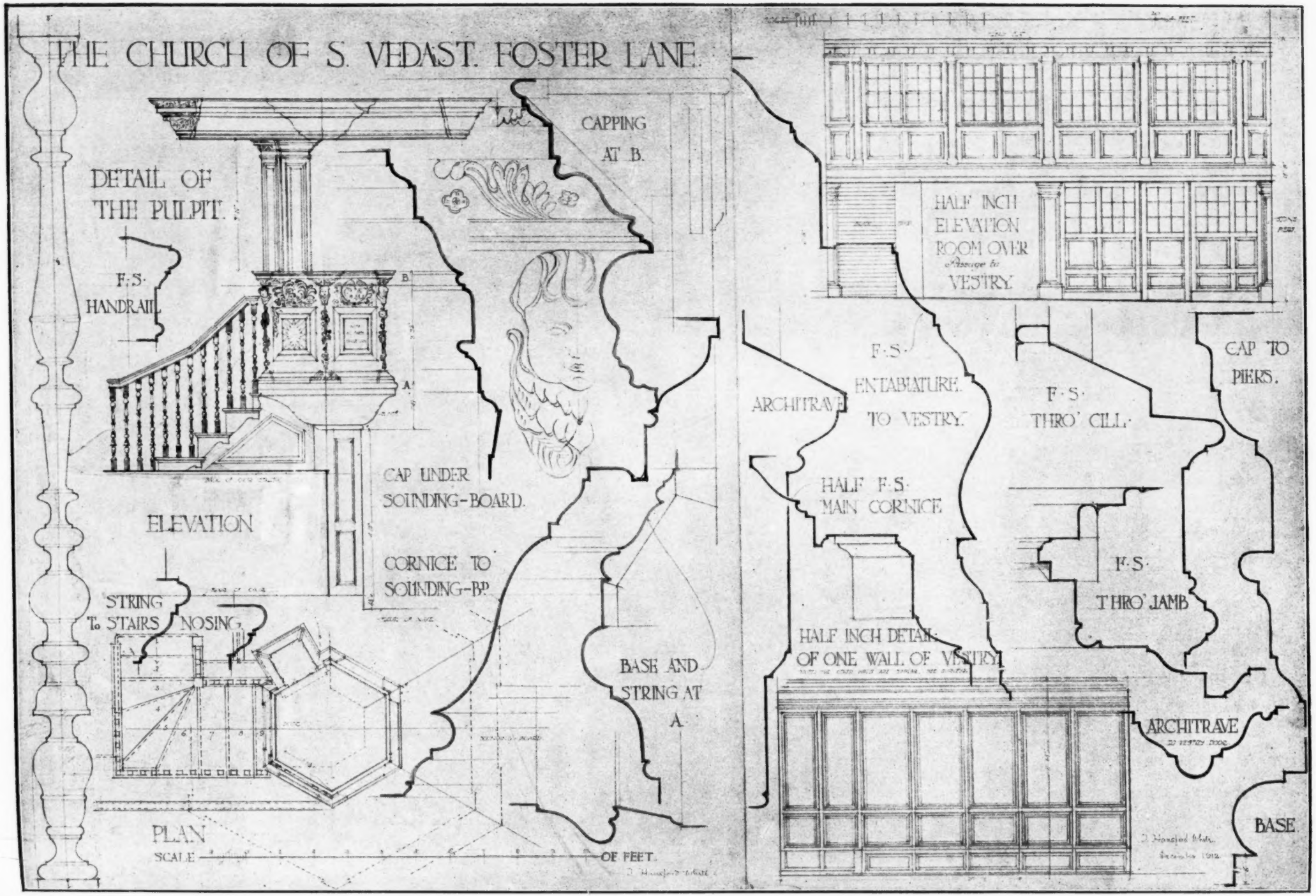
HALF PLAN AT D.







MEASURED AND DRAWN BY MR. T. HANSFORD WHITE.



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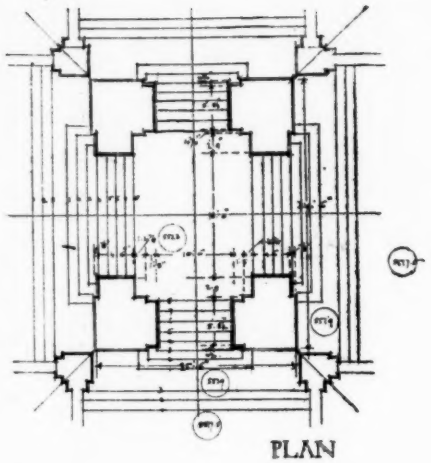
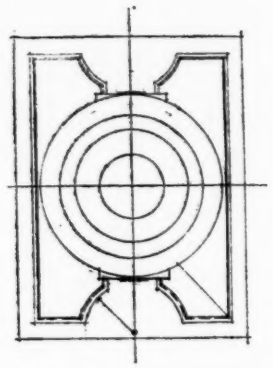
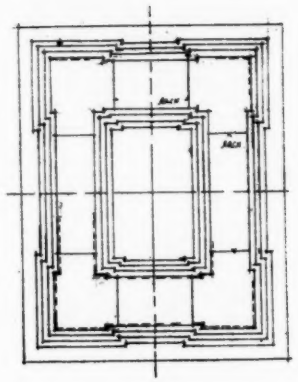


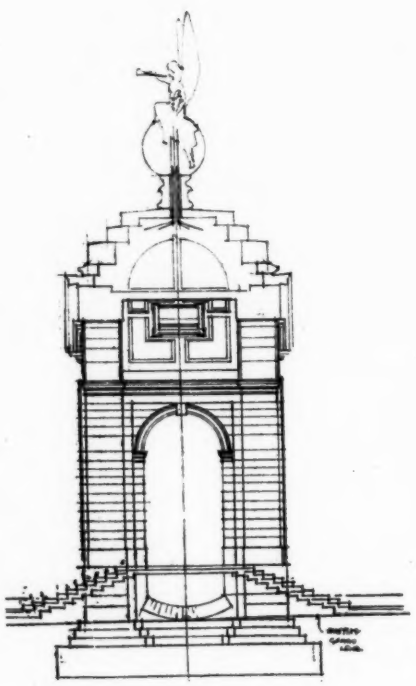
PLAN



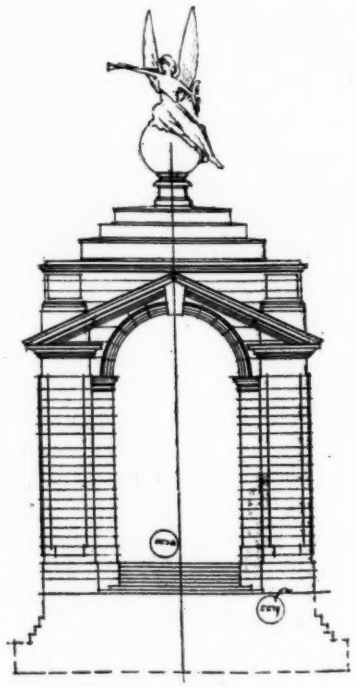
PLAN OF UPPER PART



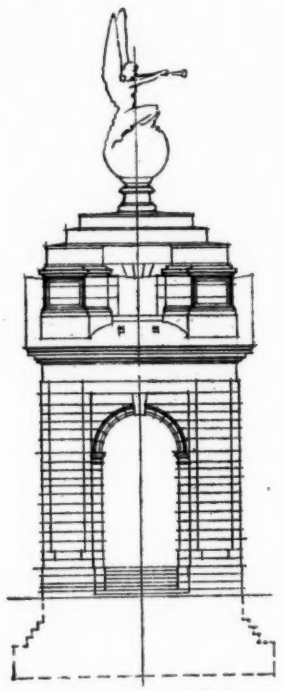
FOUNDATION PLAN.



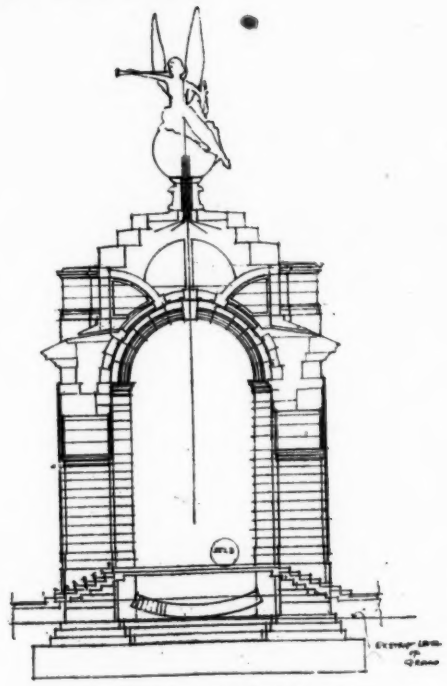
CROSS SECTION



WEST ELEVATION



SOUTH ELEVATION



LONGITUDINAL SECTION

THE RAND REGIMENTS' MEMORIAL, JOHANNESBURG.—Mr. E. L. Lutyens, A.R.A., Architect.

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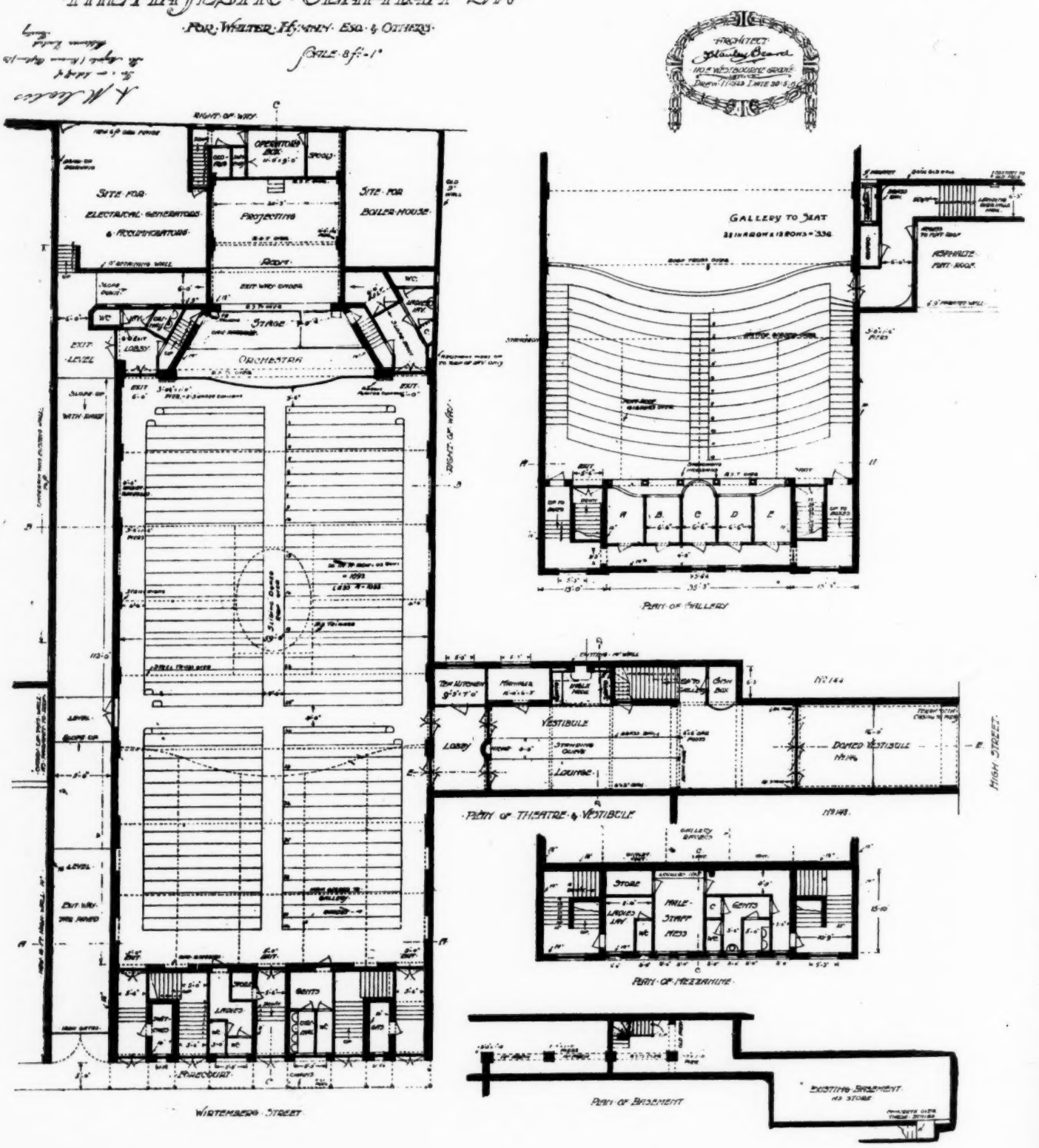
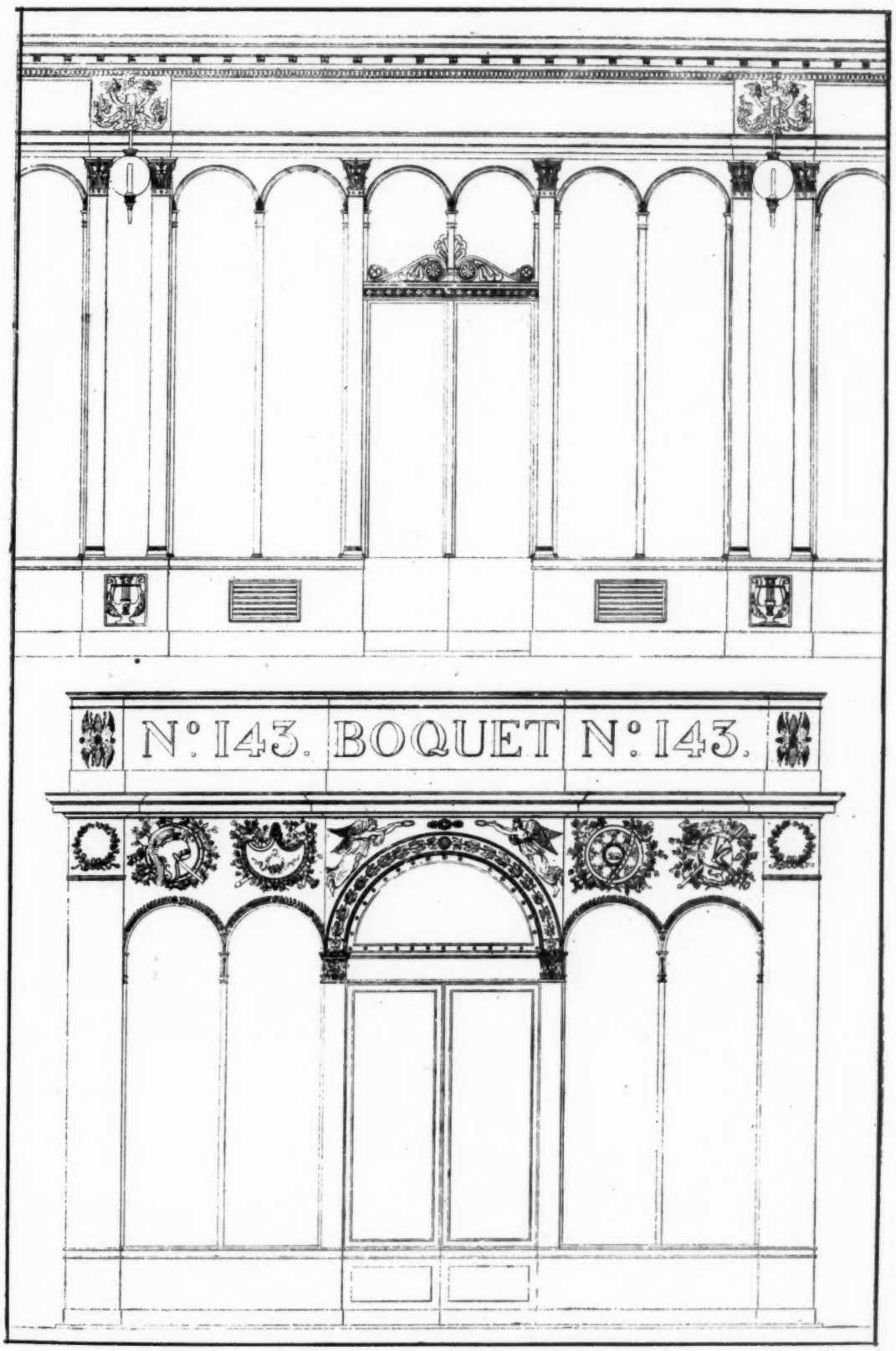
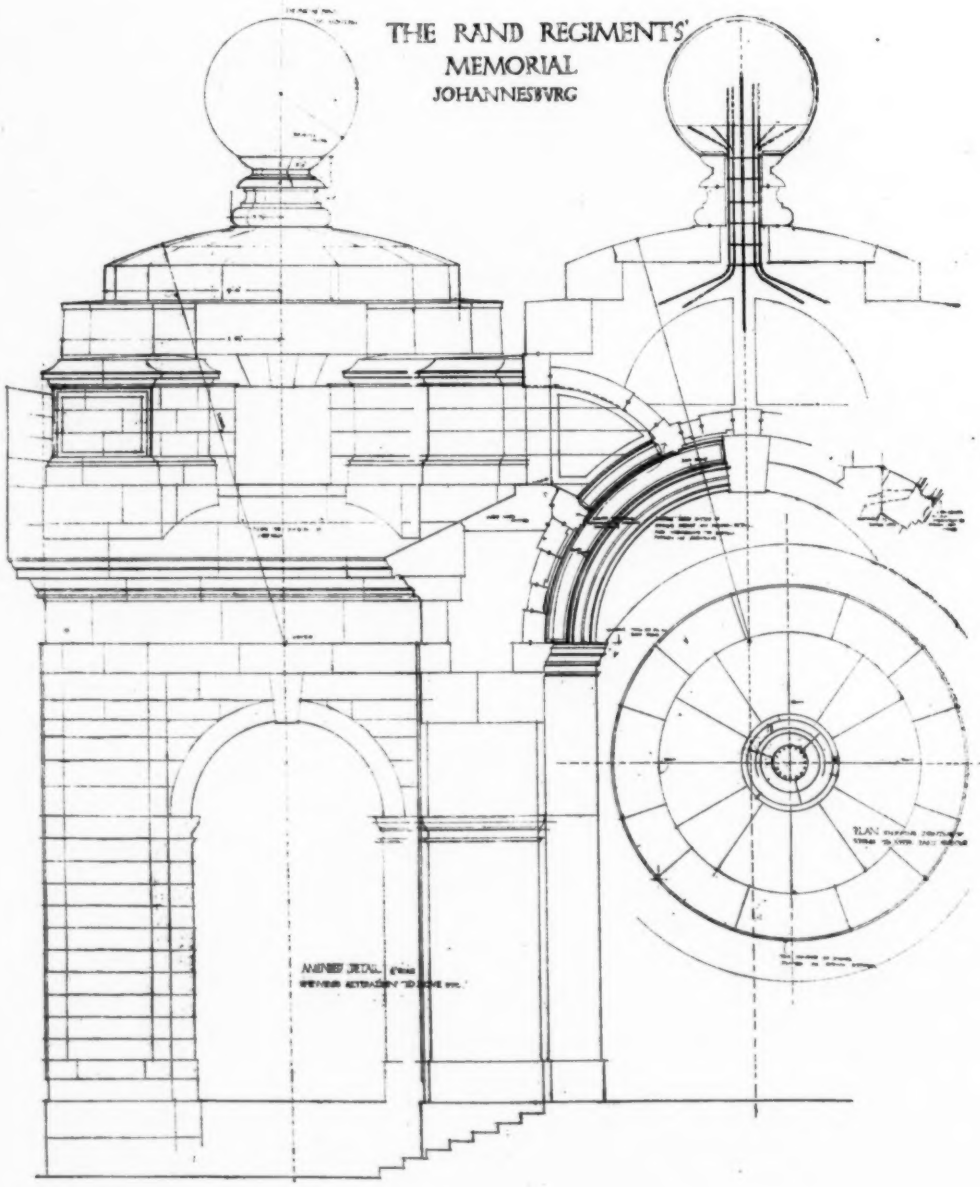


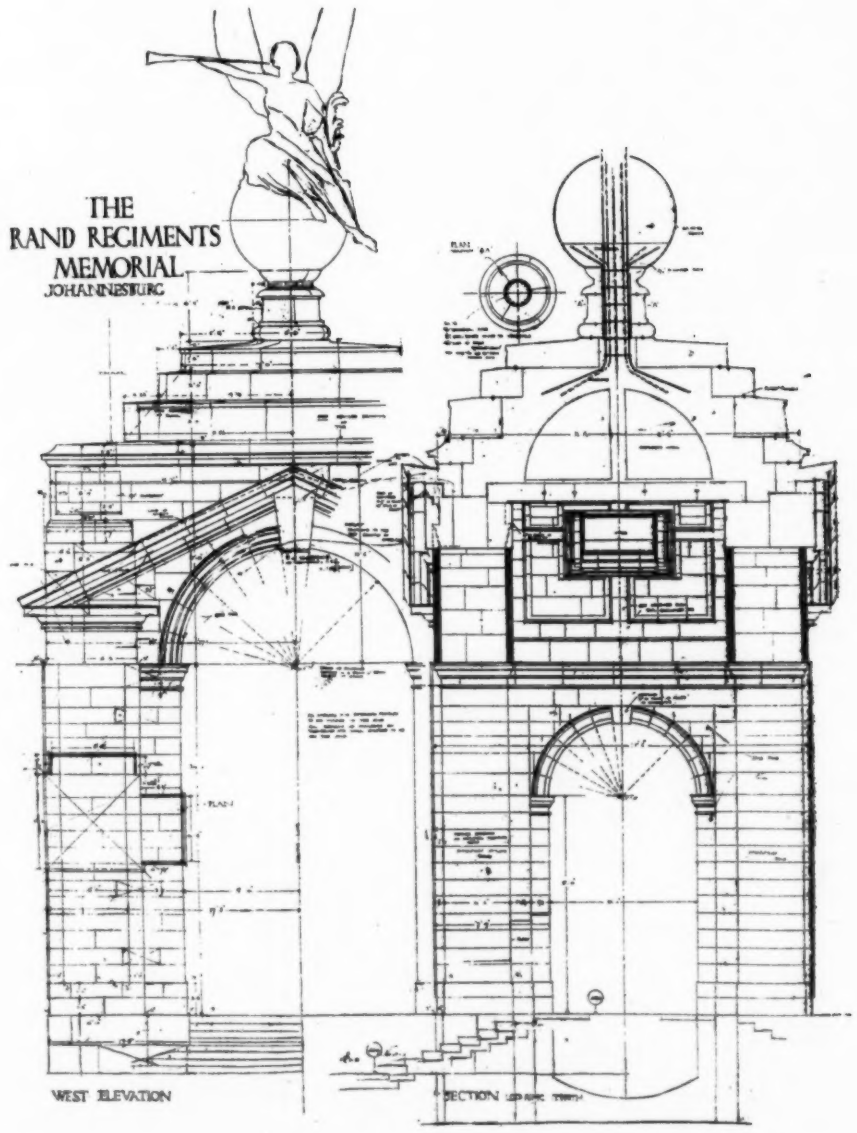
THE MAJESTIC CINEMA THEATRE, CLAPHAM, S.W.—Mr. J. Stanley Beard, Architect.



TYPICAL FRENCH SHOP FRONTS.

(From Thiollet's "Principes et Études d'Architecture.")

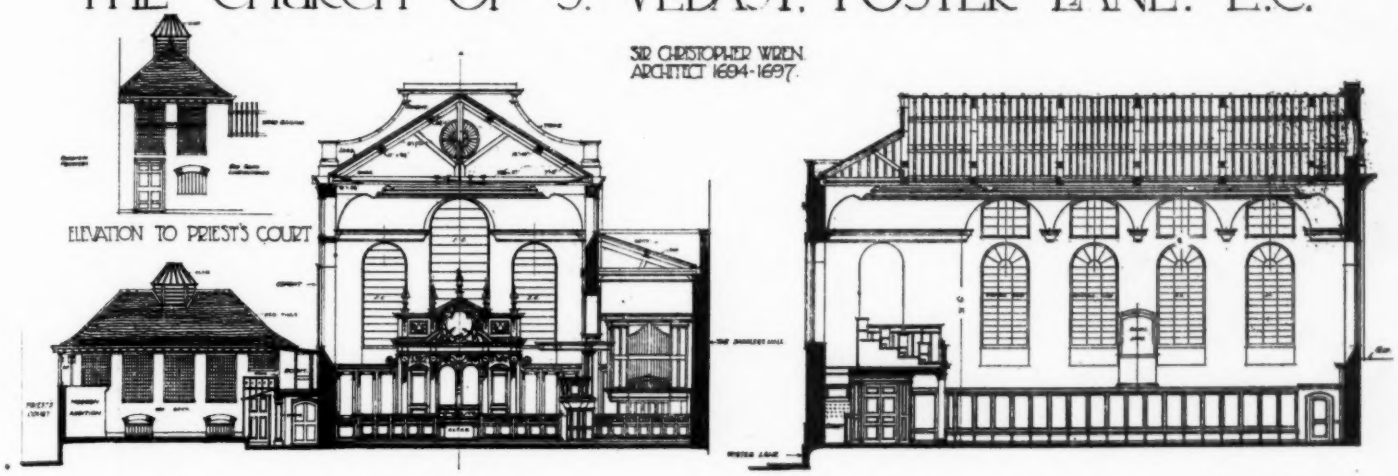




THE RAND REGIMENTS' MEMORIAL, JOHANNESBURG: DETAILS.—Mr. E. L. Lutyens, A.R.A., Architect.

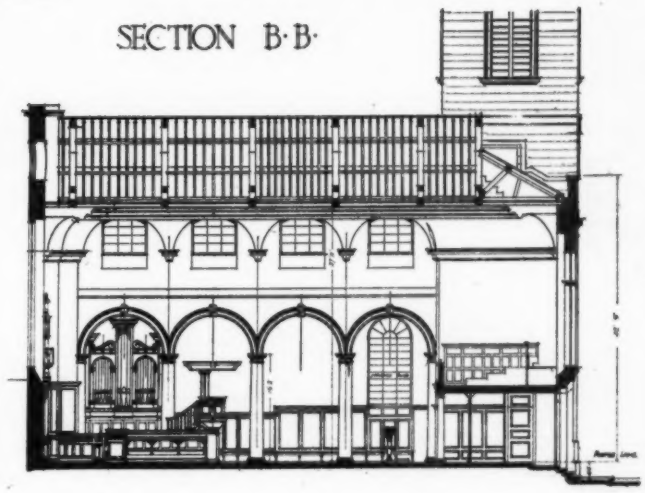
THE CHURCH OF S. VEDAST, FOSTER LANE, E.C.

SIR CHRISTOPHER WREN
ARCHITECT 1694-1697.



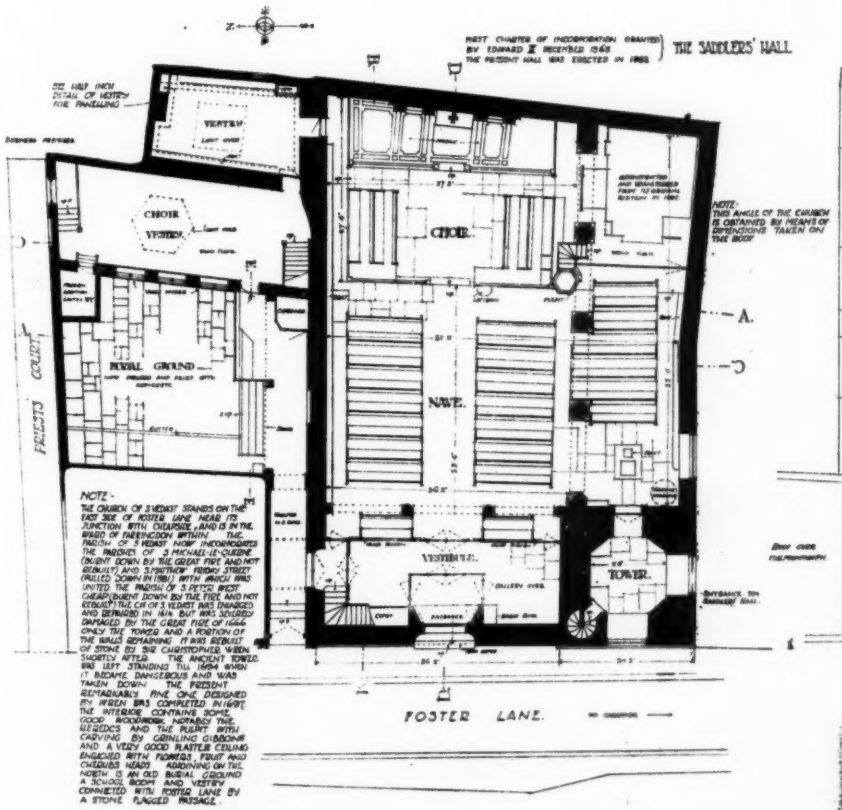
SECTION A·A·

SECTION B·B·

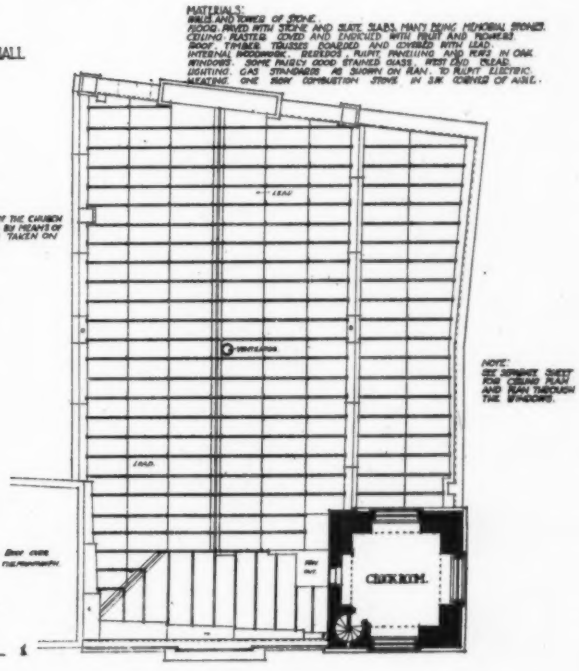


SECTION C·C·

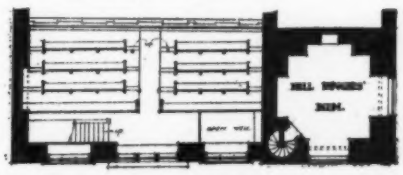
SECTION D·D·



GROUND PLAN.

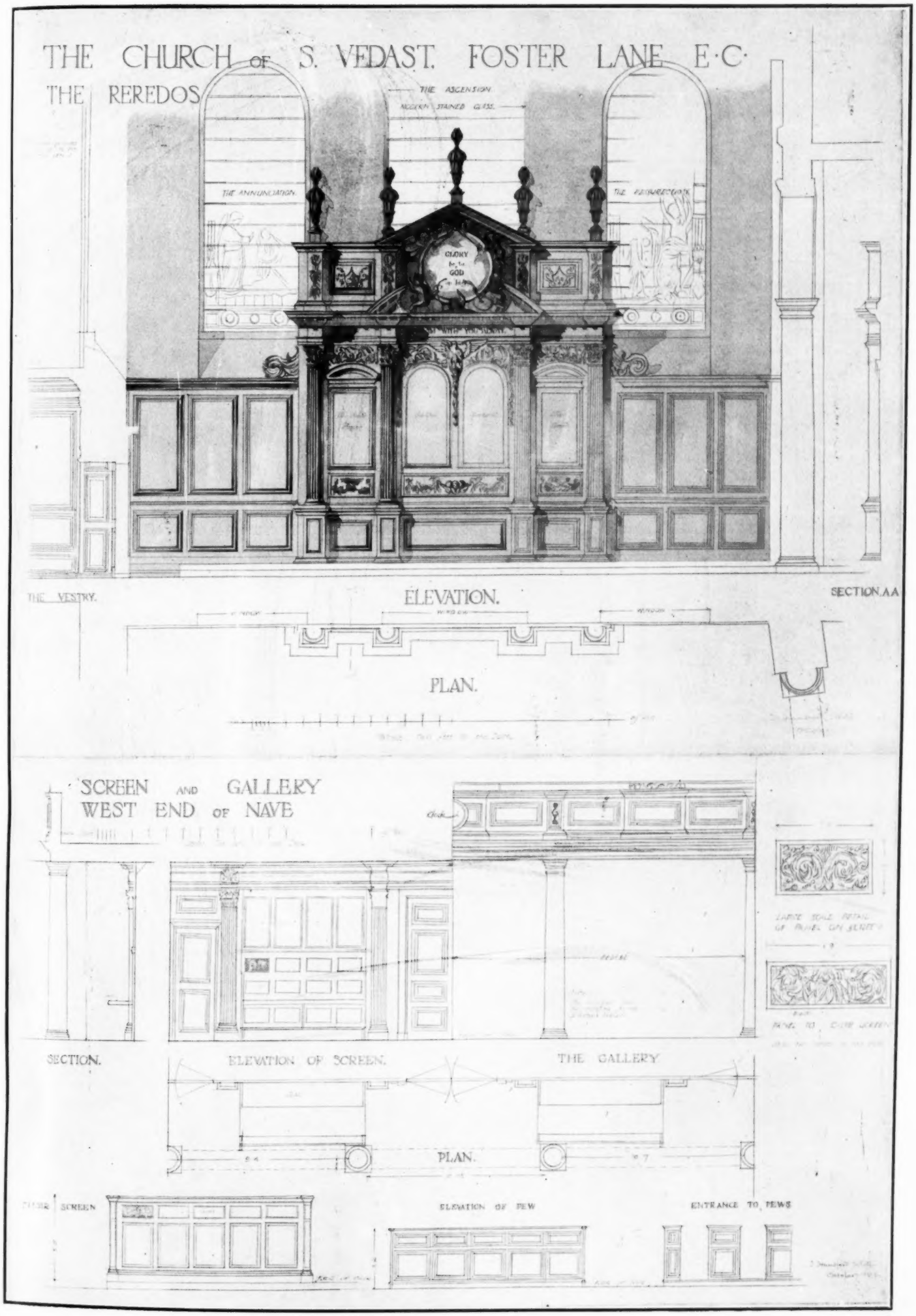


ROOF PLAN.



GALLERY PLAN.

Measured and Drawn by Mr. T. Hansford White.



MEASURED AND DRAWN BY MR. T. HANSFORD WHITE.